MECHANIX ILLUSTRATED

A FAWCETT PUBLICATION

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WALTER MESAROS .....art associate
VINCENT TROIANO .....art assistant
ED BRANDON .....art assistant

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FEBRUARY, 1959

VOLUME 38, NUMBER 2

Cover photo by H. J. Capotosto

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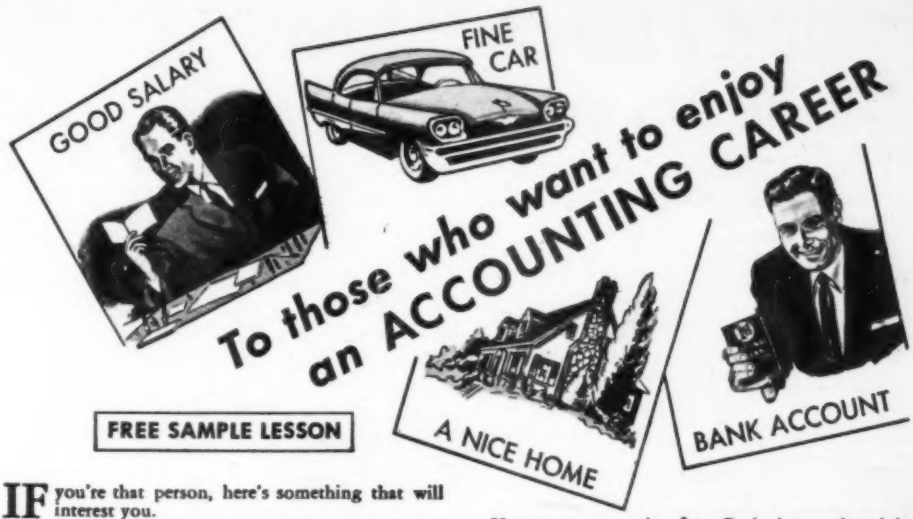

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IF you're that person, here's something that will interest you.

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Of course, you need something more than just the desire to be an accountant. You've got to pay the price—be willing to study earnestly, thoroughly.

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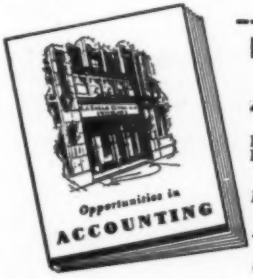

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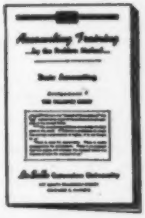

"I call it a bad day if I don't make $25 before noon"

(This chair alone brought $4.50 with twenty-five minutes work and 32¢ in cleaning materials.)

by Harold Holmes

"Just a few months ago I made the big move. I gave up my job and started spending all my time in the little business I had been running on the side. It wasn't an easy decision, but, now I'm tickled to death I made it. Not just because I'm my own boss or because I have an excellent chance of making over $10,000 this year. It goes deeper than that.

"You see, this idea has caught on like wildfire in my town. Not a day goes by without my phone ringing with women calling for appointments. The beauty of it is that once a woman becomes my customer, she calls back year after year. Not only that, she tells her friends, too, and they call me. Before I know it I'm swamped with work. (And at $7.50 an hour net profit it doesn't take long before my bank account is really mushrooming.)

"Funny thing, but back last year, before I started, I never realized the money there was in this business waiting for someone to come along and collect it. Just think: every house in town has furniture and most have rugs or carpeting. I concentrate on just the better homes and have more work than I can handle. You know why? Because women are fussy about their furnishings. Can't stand to see them dirty. That's why they call me over every year.

"The average job is worth $25.00 to me and takes a little over 2 hours. Out of this, after paying for materials, advertising and other expenses I net about $15.00 clear profit. This means I need just 3 jobs a day to clear $11,250.00 in a year. Frankly, since this will be my first full-time year I'll be glad to hit the $10,000 mark. But after that this business should grow larger each year until I have to hire men to help me handle the business.

Personally Trained

"Believe me there's nothing magic about it. I didn't know a thing about cleaning home furnishings before I became a Duraclean dealer. But after my application was accepted, I was trained in their factory-training school and by a dealer in a nearby town. I was astonished by the short time it took me to become an expert. Actually, much of the credit must go to the Duraclean process, which is so safe it has earned the Parents' Magazine Seal.

"The portable machine you see is just one of the electrical machines I use. It manufactures a light aerated foam with a peculiar action chemists call 'peptizing'. It means that instead of being scrubbed deep into the fabric, dirt is gently ABSORBED by the foam, leaving the fabric clean all the way down. Women can't believe their eyes when they see how it works. Colors appear bright again, and rug pile unmats and rises like new. I don't have to soak rugs or upholstery to get them clean, which ends the problem of shrinkage, and means the furnishings can be used again the very same day. This alone has brought me a lot of customers.

"As a Duraclean dealer I make money with four other services, too: ***Duraproof*** . . which makes furnishings immune to moth and carpet beetle damage (it's backed by a six year warranty). ***Durashield,*** a brand new dirt-delaying treatment. It coats fabrics with an invisible film that keeps dirt out. ***Duraguard,*** another new service, flameproofs draperies, upholstery and carpets to reduce charring and the tendency of fires to flame up. And ***Spotcraft,*** which consists of special chemical products for removing stubborn spots and stains. On jobs where I perform all five services, I multiply profits!

"One of the nicest things about being a Duraclean dealer is that I get continuous help from Duraclean Headquarters. My services are nationally-advertised in famous magazines like McCall's, House Beautiful and many others. I also get a complete advertising kit prepared by experts. (There's even a musical commercial!) I get a monthly magazine full of methods to build business and I can meet with other dealers at Duraclean conventions. I'm also backed by insurance. In fact there are over 25 regular services I get under their unique System.

No Shop Needed

"Maybe you too would like to break away from your job and make a fresh start in a business of your own. Do you need a shop? Certainly not. I operate from home. Need a lot of money to start? Not at all. Duraclean finances reliable men, after a moderate down payment, and furnishes enough supplies to return your TOTAL investment.

"You get everything you need: equipment, supplies, advertising matter, personal training, and regular help from Headquarters. To get all the details, fill out the coupon. There's no obligation and you can *decide for yourself.* I'll say one thing: if you DO become a Duraclean dealer, you'll be glad the rest of your life that you took time today to write."

***Irl H. Marshall, Jr.,* International Headquarters**
Desk 9-172, 839 Waukegan Avenue, Deerfield, Ill.

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I'm interested in owning my own business. Please send illustrated booklets and full details FREE outlining the Duraclean Dealership Program and territory arrangement.

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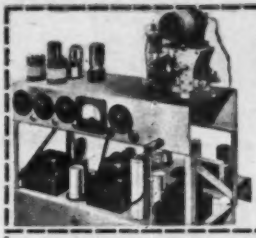

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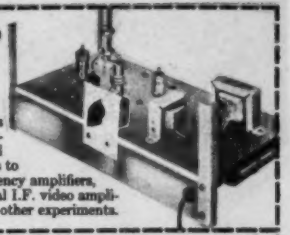

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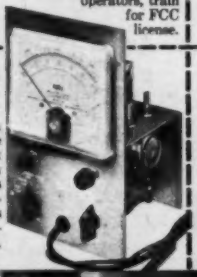
Use it to get practical experience, earn extra cash fixing neighbors' sets in spare time, gain knowledge to help you work in Radio, Television, Color TV. With N.R.I. training you work on circuits common to both Radio and TV. Equipment you build "brings to life" things you learn in N.R.I.'s easy-to-understand lessons. 64 page Catalog FREE, shows all equipment you get.



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by Practicing at Home

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"I am Chief Engineer of Station KGCU in Mandan, N. D. I also have my own spare time business servicing high frequency two-way communications systems." R. BARNETT, Bismarck, North Dakota.

Paid for Instruments

"I am doing very well in spare time TV and Radio. Sometimes have three TV jobs waiting and also fix car Radios for garages. I paid for instruments out of earnings." G. F. SEAMAN, New York, N. Y.

Has Own TV Business

"We have an appliance store with our Radio and TV servicing, and get TV repairs. During my Army service, NRI training helped get me a top rated job." W. M. WEIDNER, Fairfax, South Dakota.

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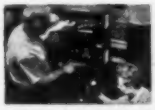

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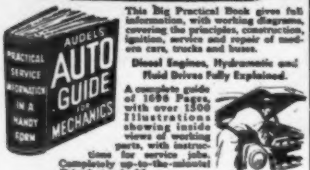

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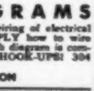

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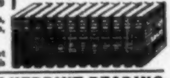

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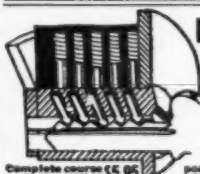

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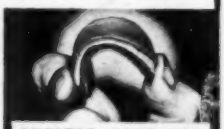

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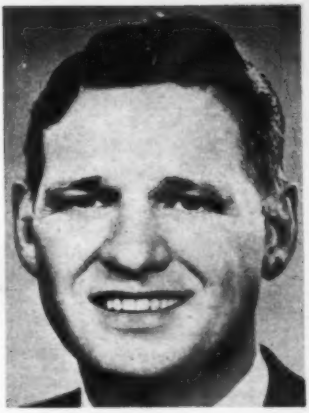

If you will send me your name, I will tell you about an unusual kind of business that you can start right away—in your own home—in your spare time. It is the kind of business in which you will never have to compete with the "Big Fellows". It is a "one man" business that you can operate without outside help. You don't need a bit of experience to start and the investment is so small that almost any man can easily afford it. Complete information will not cost you a penny.

By DON WARNER

At one time or another, almost every man I ever knew has had a hankering to own and operate some kind of a business of his own. But not one in a hundred ever got beyond the "wishing" stage. And nobody can blame them much. Everyone of these men ran up against some pretty tough obstacles. Lack of capital was one, lack of experience was another—fear of tackling the unknown.

So these men went along year after year in the same old rut. Most of them got raises now and then, but usually the pay boost wasn't even enough to keep pace with the rising prices. So after ten years with their noses to the grindstone, they were no better off than when they started.

I only wish I had known, ten years ago, what I know today. I could have helped all these friends of mine. I could have shown them a sure and simple way to make their dreams come true—just as I have done for hundreds of other men in more recent years.

For I have discovered a secret that makes it easy for any man to get out of the doldrums and learn quickly the kind of business that can change the entire course of his life.

This new kind of business is built around a little machine that I invented. It is a small machine—so small that you can set it up on a table top right in your own kitchen. And it is an inexpensive machine. It costs so little that any man who is earning even a modest salary can easily afford it.

Yet with this simple table-top machine you can break into a multi-million dollar business that was once controlled by a few big companies. As a matter of fact, this gigantic business is rapidly being taken over by small home operators—one in each community—throughout the United States.

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If you are interested in knowing more about this business and how you can get started on it, I shall be happy to give you full particulars free of charge. Let me assure you that you don't need a bit of experience. I give you complete instructions for operating the machine and show you eight different ways to get business coming in fast so you can start making money right from the very beginning.

And always remember this. You can start at home in your own spare time. You don't have to give up your present job. You don't risk a penny of your present income. You can run this business as a spare time operation and make a lot of extra money. Then, as business grows and starts to make more for you than you get out of your present job, you can expand it into a full time business.

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Invention Clinic

Joseph H. Kraus

In this column each month Mr. Kraus will answer as many letters as space permits on those subjects he feels to be of widest general interest. Time does not allow him to reply to any letters except those printed here. Address your questions to the Invention Clinic, *Mechanix Illustrated*, 67 West 44 St., New York 36, N. Y.

Heat Exchanger

H. L. Clark, Jr. of Oak Grove, Ky., outlines a system for obtaining heat from the waters of the Gulf of Mexico to generate steam and produce power. Is this an original idea? Does it have commercial value?

About 1924 the famous scientist Georges Claude set up a pilot plant in which he utilized the difference in temperatures of water taken from the surface and from several hundred feet below to run an engine and generator. The system proved workable but was economically unsound. You have not even developed the details of the proposed operation of your arrangement, nor considered the problems resulting from gassing which plagued Claude. Basically, your system is not original. But it might have commercial value if you could prove it economically feasible. This will be difficult to accomplish.

Hi-Fi Hum Eliminator

Karl Haug of Kalamazoo, Mich., sends a circuit diagram which he feels will eliminate the hum from magnetic phono pick-ups. Will we comment on the workability of the suggestion, the possible value as a marketable product and the patentability?

You are assuming that magnetic pick-ups will always be used and that all hum is created by the effect of a motor on the magnetic pick-up. Hum is also heard in units which do not have magnetic pick-ups, while others with pick-ups are relatively free of hum even when fed from the same power source.

Your system may reduce hum in certain motors but the cost is likely to be greater than motor replacement. We suggest much experimental work before you apply for protection. You have to prove this scientifically, not merely theorize on possibility.

Reed Valves For The Gas Engines

Douglas C. Mercer of Seattle, Wash., sends a design for reed valves for gasoline engines. "This system obviously provides better breathing qualities and . . . lasting valve life." Does this design have any merit?

It is not obvious to me. Early gasoline engines had the equivalent of reed valves. In your proposal you utilize both the poppet and reed combination, thus assuring that some of the scavenged gases will mix with unexploded gases. This is not designed for efficiency. We would recommend that you have a search made to learn how many patents have been obtained in this area.

Window Washing Equipment

Orval Abbot of Murray, Utah, sends a diagram and description of a window washer with a tubular reservoir containing the liquid

[*Continued on page 24*]

INVENTOR'S TIP OF THE MONTH

The inventor who can develop a practical device for washing the outside panes of windows from inside the house is sure to be successful. He should remember, however, that dozens of U-shaped gadgets have been patented for this purpose and some have appeared on the market. The goal should be to produce a foolproof item which will be easy to manipulate on both the upper and lower parts of the window.

INVENTORS

If you believe that you have an invention, you should find out how to protect it. The first step is to have a search made of the prior pertinent U. S. patents. If a report on this search indicates that the invention appears patentable you can apply for a patent, and the specifications and claims should be prepared.

The firm of McMorrow, Berman & Davidson, with offices in Washington, D. C., is qualified to take the necessary steps for you. We can make a preliminary search on your invention, advise you whether we think it can be patented, and prepare your application for patent.

Unless you are fully familiar with the U. S. Patent Laws, we recommend that you engage the services of a Registered Patent Attorney to protect your interests. The patent laws are *your* laws. A patent gives you the right to prevent others from making, using or selling the invention claimed in your patent for a period of 17 years.

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Send for a copy of our Patent Booklet entitled "How To Protect Your Invention," containing information about patent protection and patent procedure. Along with this we will also send you an "Invention Record" form, for your use in writing down and sketching details of your invention. We will mail them promptly. No obligation. They are yours for the asking.

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Invention Clinic

[*Continued from page 22*]

and a squeegee for drying. He has sent a registered letter to himself. Will this afford him protection, and for how long?

You have no protection. Mailing the registered letter to yourself merely helps you establish a claim of priority, should this be necessary. Such a letter should never be opened except in court. Window washers similar to the one you describe have been on the market for years.

Remote Bingo

E. N. Saguclo, FPO, San Francisco, Calif., has designed an electrically operated Bingo game system which anyone can play from a remote distance, even while in bed. "There is no sound system, amplifier or the like in this system," he states. What is our comment?

You are asking us to perform a mind-reading act and imagine how your system operates. We could develop a dozen ways to do the same thing and also dispense with amplifiers and sound. In fact, some food stores are providing Bingo games by mail. Your system may not be patentable. Much will depend on the circuitry, ease of installation and freedom from tampering or counterfeiting.

Snow Remover Attachment

Daniel J. Klinger and C. R. Stertzer of Columbus, Ohio, send diagrams for a snow-removing attachment to be fitted to power lawn mowers. "We have written to numerous organizations and have not yet received a reply," they say. Should they give it up or try again?

You are trying to sell an idea which may not be original. We have seen similar attachments. They do not do a good job on wet

[*Continued on page 32*]

INVENTORS

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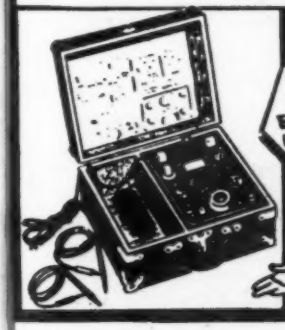

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Upon reading Frederick C. Russell's piece on Emergency Equipment (Oct. MI), I rushed out and bought all those things only to find that I needed a truck instead of a trunk. I was just about to give up driving, since there are times when I am many miles from a gas station and even more a garage, when I had a wonderful idea. I simply bought an Isetta and put it in the luggage compartment. Now, when something happens, I can go for help.

George Cook
Alpine, N. Y.

● *'S All Right*

Before I bought my Buick I called your office to get some unprejudiced facts. A nice girl answered my questions by reading from McCahill's article on the Buick. I was so fascinated I asked her to read more and she ended up reading the whole article. She was sure nice to somebody who doesn't ever read MI. I bought the car.

J. P. R.
Staten Island, N. Y.

The nice girl has been fired. In the future, ask your mother to buy the book and read it to you.

● *Why Go To Paris?*

In your August issue of MI under the It's New! heading you show a ten-minute car wash in Paris using three big brushes. In Kansas City we have one that is exactly the same but does the job in three minutes.

Gary Warinner
Kansas City, Mo.

Everything's up-to-date in Kansas City.

● *Great Idea*

The Don't-Do-It's cartoons are very educational and timely. How about some about the litterbugs and the polluters of air and stream? Remember, one picture is worth 1,000 words.

Joseph F. Jedlinsky
Cleveland, Ohio

Don't-Do-It's try to save readers from themselves, Joe, rather than to awaken their social consciences. But below is a picture of us MI staffers at work with the hotel next door belching its own mixture of burnt egg, soot, and nerve gas. We're sending a copy of this issue to the manager.

● *Trap For Texans*

In the Sept. issue you suggested that a reader try to sell his Caloric Fan to a Texas oil man. I have this genuine Currier and Ives print of Little White Kittens Into Mischief and I am looking for that same Texan.

W. T. H.
Pontiac, Mich,

W. T., you may have exceeded the limit, even for Texans. But lots of luck.

[Continued on page 28]

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Dear Editor

[*Continued from page* 26]

● *February MI Mystery*

Anybody can see that the sum below is correct, but to prove it is another matter. Suppose that you do so by replacing each letter by a digit—the same digit for the same letter throughout. Of course, different letters must be replaced by different digits.

```
  O N E
  T W O
  F O U R
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Any one of several solutions would serve to prove the sum, but only one also proves the truism that if your WOES are multiplied (especially five-fold) you are bound to get SORER. (From Mathematical Puzzles For Beginners And Enthusiasts, Geoffrey Mott-Smith, Dover Publications, New York.)

[*Continued on page* 68]

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- D.E. Razor Blades, $1.50 per 1000 blades.
- $1 Mufflers, Scarfs, 12½c each.
- 25c Rudolph Reindeer brooches, 2c each.
- $15 Electric Percolators, $5 each!
- $1 Chlorophyl Tablets, 7½c pkg.
- 15c Textile dyes, 3½c pkg.
- $49.95 Gold Bracelet, Bond $4.75.
- POSTAL SCALES, 7½c each!
- $2.95 Horserace game records, 30c each.
- $1.95 Men's silk ties, 12½c each!
- PENCILS, 144 for 57½c!
- 69c Insect Repellent, 5c each!
- CHRISTMAS SEALS, 25c per 1000!
- ENVELOPES, 50c per 1000!
- Calendar Wrist Watches, $5.00 each!
- $10 Men's Toiletry Sets, 60c each!

(Above list merely illustrates type of Bargains found in this paper. Lists change monthly.)

"BARGAINS" will MAKE or SAVE YOU Money!

Thousands are getting "Bargains" every month! It's the only big tabloid paper of its type published. "Bargains" brings you Bargain offers, THOUSANDS of them. Many are so rare, so terrific, that they're almost unbelievable! WE GUARANTEE TO BRING YOU AT LEAST 10,000 BARGAIN OFFERS WITHIN A YEAR'S TIME!

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Today, more than ever before, people want Bargains! Everybody—but everybody is out looking for good buys. You can literally "clean up" when you BUY CHEAP—SELL CHEAP. Let "Bargains" help you do this. EVERY MONTH! You need "Bargains" now more than ever before! For "Bargains" shows you where to get tremendous, eye-opening bargains in—

TOYS, JEWELRY, BOOKS, HOUSEHOLD GOODS, APPLIANCES, FOODS, CLOTHING, GREETING CARDS, TOOLS, GIFTS, ETC. Often as low as 10c on the Retail dollar! Save Money! Buy at wholesale and even Below Wholesale all your requirements! Let "Bargains" show you how to do this every month of the year!

FREE with every subscription—"Buy Direct from the U. S. Gov't." ($2 val.) Now you can get this valuable folio which shows you HOW and WHERE to apply for gov't surplus merchandise and which sold for $2.00 each, FREE with every 1 yr. subscription to "Bargains."

JUST $2.00 BUYS "BARGAINS" for 1 FULL YEAR AND YOU GET THE FOLIO FREE! (Reg. $4.00 value!) This offer is an experiment. We don't know how long we can keep it open! RUSH YOUR SUBSCRIPTION NOW—Make sure of getting it in on time.

GET THIS $2.00 FOLIO FREE!

"Buy Direct from the U. S. Gov't"

Tools, Machinery, Cameras, Film, Projectors, Typewriters, Clothing, Jeeps, Stationery, Camping Equip., etc.

Often as Low as 5¢ on the Retail Dollar!

Thousands of copies of this valuable folio sold for $2.00 each! Now yours FREE with every full year's subscription to "Bargains."

LOOK WHAT SUBSCRIBERS ARE SAYING!

". . . Your book BARGAINS is just wonderful and I am very glad I subscribed to it."—H. K., Port Monmouth, N. J.

". . . As a result of answering one of the ads (in Bargains) it has resulted in extra profits of $49.00 and upwards per month."—J. H., Alabama.

". . . Saw your wonderful paper and enjoyed every bit of its reading and adv. It's a Great Paper."—M. S., Vermont.

". . . I think BARGAINS is the best merchandise publication I have ever seen (and I have seen hundreds)."—S. P. S., Brooklyn, N. Y.

PLUS MANY OTHERS!

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WHAT CAN YOU LOSE? If you are not delighted with your 1st issue, you can have your money back IN FULL! No quibbling about it either!

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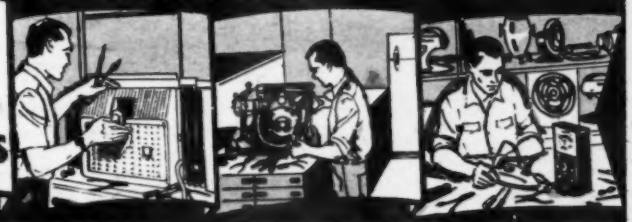

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Incomplete training limits your earning power, even disqualifies you for top-pay jobs. The big service companies require *complete*, all-phase training. If you open your own shop, you'll be called upon to service and repair *all types* of refrigerators, air conditioners and appliances. With *complete* training—as only National Technical Schools can give you—you can accept every job, make *big profits all year round.*

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You get Professional Tools, Precision Instruments, PLUS a Factory-Made APPLIANCE TESTER! A shop-full of *PRACTICAL*, professional equipment. Use them to conduct over 100 experiments... also in Spare Time Work and ON THE JOB. It is all yours to keep... no EXTRA MONEY DEPOSITS... no EXTRA COST on your equipment kits.

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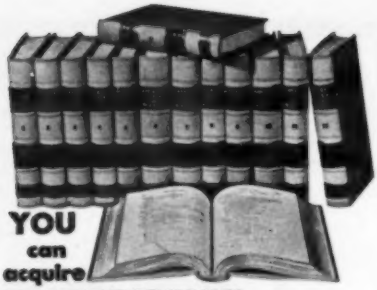

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NEW YORK CITY

Invention Clinic

[*Continued from page* 24]

snow. Why not have a search made to determine if you have anything patentable, then build a model and test it this winter.

Finger Guard For Bowlers

Glen Winchell, Jr., of Valley Falls, N. Y., sends diagrams and description of a finger guard for bowlers. What is our advice?

An article like this must be acceptable to bowlers and not lower their average scores. You may find it difficult to get protection because use for an article is not a claim for a patent, and many finger guards have been marketed for other purposes. You seem to show several values in your diagram, but these are not explained. We suggest you ask your attorney to report on a thorough search. Meanwhile have several finger guards made and ask your friends to use them under a test set-up to see what effect they have on scores. The totals might tell an important story.

Inventor—Manufacturer

Don Sizelove of Bloomington, Ill., wants to know if starting a business of bringing the inventor and manufacturer together is worthwhile. What should be considered before going into this field?

You should know how much money you will need to invest over an extended period of time to do the job right. This will require much capital. The organization should reap its operating revenue from a percentage on the sales, from successful research which might come out of its laboratories, and even from "wild cat" ventures submitted by those who have neither the money, know-how or simply lose interest in the business end of invention. •

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U. S. Patents protect your inventions. Our free book of "Instructions on Patent Procedure for Inventors," also "Certificate of Invention" form sent without obligation.

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New get tough double quick!

A course of instruction in the art of practicing and using this method of applying LIGHTNING-QUICK Super Ju Jitsu. Be Dangerous! These amazing lessons show you how it's done . . . in a big illustrated home-study course. The weapons are just your BARE HANDS—they can be used effectively if you know how and practice the art. Easy to learn; quick. Full 76-lesson course only $3.95 postpaid—or COD, plus postage. Satisfaction or your money back guaranteed! Order "super Ju Jitsu Course."

NELSON-HALL CO., 210 S. Clinton, Dept. 88R-3, Chicago 6, Ill.

THIS CRAZY STUFF

CAN MAKE YOU UP TO $500.00 PROFIT ON $20 WORTH OF MATERIALS

$1.00 BRINGS YOU $25.00

Yes, "crazy" is the RIGHT WORD. Microscopic cloth fibres, in rainbow colors, sprayed on like paint! Appears heavy as wet mud, actually light as goose down! Square foot of coverage costs 3c, LOOKS and FEELS like $15 a yard velvet! And PROFITS are crazy, too. Less than 50c worth of Velvo-Finish transforms the OLDEST beat-up radio or TV console into MAGNIFICENT, DECORATOR'S PIECE. A bargain in refinishing at $10, and you can do 3 to 4 such $10 jobs in ONE HOUR!

FREE SAMPLE MAIL COUPON

SENSATIONAL NEW HOME BUSINESS IN "VELVO-FINISH" SURFACING PAYS UP TO $15 & $20 AN HOUR

Are you tired of being told what to do, when to come to work—perhaps when to stay home (without pay!) when work is scarce? Would you like to walk out on all this, and start piling up the big profits for yourself? If you are really in earnest, here is your once-in-a-lifetime opportunity to do it.

START IN SPARE TIME
Enjoy 2 INCOMES AT ONCE!

A corner of garage, basement, or service porch is room enough to start. Do Velvo-Finishing evenings or weekends, and keep present job until you are "set." Profit from this double income in beginning, and bank the extra money — to buy a home, for a secure future, or to open your own full-time business when you are ready.

BECOME EXPERT IN A FEW HOURS!

No previous experience or special skill needed. My complete illustrated instructions make it easy to learn, easy to do. Few hours of practice make you a professional. Some actually complete and deliver their first high-profit jobs within a day or two after materials arrive!

FLOK-KRAFT
New 'SPRAY-ON'
Velvo-Finish
Protects and Beautifies METAL, WOOD, PAPER, GLASS Anything at all!

EARN UP TO $250 A WEEK

Of course, not *every* job pays $10 for 15 to 20 minutes work. And not *every* minute is productive. You must spend *some* time discussing orders with customers, preparing your materials, cleaning your tools. But profits are so *fantastic* that just a *few jobs a week* can bring in $200 or more. I show you *exactly what to do* to get these big-pay orders rolling in!

ORDERS COME FROM HOMES, STORES, FACTORIES, RESTAURANTS, ETC.

Prospects for Velvo-Finish are behind almost *every door*. Illustrations here show only *few* from *hundreds* of uses. Cover bottoms of lamps, ash trays, pottery, to prevent scratching tables. Beautify old book cases. Put green game-room tops on card tables. Make and sell your own Xmas cards and toys *by mail order* (I show you how). Line trunks, compartments of new and used cars with this velvet-soft finish to protect luggage *(tremendous* market here!). And many more. Instructions include *scores* of money-making ideas like these.

ENJOY REAL PROSPERITY IN GOOD TIMES OR BAD

Velvo-Finish *saves* money by renewing and beautifying *old* articles so *your* trade often *picks up* when other business is in a slump. Do you ever worry about losing your job? Change that with a year-round big-profit business of your own! Buy the nice home and fine car of your dreams. Have money and time for *several* vacations a year. Plan a *better* education for your children. Velvo-Finish can do *all* this ... and *more!* Start by mailing the Coupon *TODAY* for big FREE packet—samples, ideas, business plans, full details.

...ALL THESE AND MANY MORE!!

OTHERS DO IT—SO CAN YOU!

$10,000 A YEAR!
"Earned $10,000 a year from spare-time start."
G. H., California

$13 AN HOUR!
"Got $52.50 doing auto trunks in 4 hours ... earned $13 per hour."
J. O., Missouri

TOO MANY ORDERS!
"Getting orders faster than I can handle in spare time."
W. R., Wyoming

$100 JOB 1ST DAY!
"Got $100 job first day ... promise of several more already."
C. H. E., Maryland

QUICK $140 ORDER!
"Got quick $100 order from store ... lined up 5 others in 4 hours."
H. G. R., Wisconsin

NO CHARGE FOR FRANCHISES MANY OPENINGS NOW, BUT GOING FAST

Don't delay. Be the *first* in your area to cash-in on this amazing development. Many firms with such a sensational money-making invention would charge *hundreds* of dollars just for the license to use it—but Velvo-Finish Franchises are FREE to those who act at once!

Expect $1000 a Month Profit Permanent—Big Future

Exciting profits today—even bigger earnings soon, as your reputation grows in the community. Don't stand idly by the "gravy." Start NOW ... TODAY!

RESERVE YOUR FRANCHISE TODAY! SURE!

OFFER LIMITED—
RUSH COUPON BY AIRMAIL

FREE!
16 Color Samples
Home Business Plans
Confidential Details
150 Business Ideas

COAST INDUSTRIES, Dept. M-2
Los Angeles 61, California

Rush all the FREE materials with complete information. I understand the offer of a Franchise is limited, but that you will hold it open long enough for me to answer, if I decide I want to apply for my area after I see the FREE materials. However, this request does not obligate me in any way, now or ever. What I am asking you to send is absolutely FREE and POSTPAID. (NOTE: DO NOT SEND ANY MONEY)

NAME_____ AGE_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

Coast Industries, Dept. M-2, Los Angeles 61, California

Not everyone does as well, but T. N. CODY, who started a business of his own, reports...

For 12 months I've averaged

$800

per month income

—most of it clear profit for me!

Many men have discovered how to be independent, to be free of layoffs and bosses. C. G. Naples grossed more than $200 his first week. A father-son combination grossed $44,000 their second year. H. Lemon says, "*I netted $133 in one 8-hour day.*"

How much you make depends largely on *you*. You need no special skill, no large investment. Start part time if you wish.

NO SHOP NECESSARY • Our Electric Deterger shampoos rugs, carpets right on floor—removes dirt and grime and helps to show their natural color and beauty. So efficient and safe it is used by largest railroads and hotels.

This is not a lease proposition. You own the machine, *you* work when and where you please and all the money you take in is *your own*. No risk. Machines fully guaranteed.

Mail Coupon Today for FREE Book

VON SCHRADER MFG. CO.,
212 "R" Pl., Racine, Wis.

Without obligation send me **FREE** booklet about your RUG DETERGER and tell me how I can start my own permanent, profitable business.

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MECHANIX ILLUSTRATED

MAKE $50.00 A DAY AND MORE

Taking Orders for MASTER UNIFORMS

with Embroidered-to-Order Advertising Emblems

Big and small firms in your area are hot prospects for MASTER *Advertising* Work Uniforms with firm name and design embroidered to order. Companies order uniforms for all their men. Show prospects what other firms have done and take easy orders which give you as much as $50.00 profit in a day! Many of our top men average $12,000 and more yearly. You can, too...even work spare time. No investment now or ever. No inventory to carry.

FREE **Big Selling Outfit,** which we send you without obligation, includes actual sample fabrics. Here's the perfect business for you! Write now!

Geo. MASTER Garment Co., Dept. J-29, Ligonier, Ind.

WANT TO LEARN TO PLAY the piano? Here's a good way to start. It's the marvelous Dean Ross Course, the proven successful short-cut method that features the Patented Automatic Chord Selector. In only 15 minutes you start to play songs with both hands. You learn by playing simple single note melodies with one hand, while striking beautiful simple resonant bass chord accompaniments with the other. No tedious scales, boring exercises, or dreary practice. For Free Sample Lesson, Automatic Chord Selector, Note Selector, and 5 simple "play-at-once" Songs, send name, address, and 10c for postage and handling to Dean Ross, 45 West 45 St., Studio G-8252, New York 36.

FALSE TEETH

That Loosen Need Not Embarrass

Many wearers of false teeth have suffered real embarrassment because their plate dropped, slipped or wobbled at just the wrong time. Do not live in fear of this happening to you. Just sprinkle a little FASTEETH, the **alkaline** (non-acid) powder, on your plates. Holds false teeth more firmly, so they feel more comfortable. Does not sour. Checks "plate odor" (denture breath). Get FASTEETH at drug counters everywhere.

Get into.. PLASTIC LAMINATING AT HOME!

Make up to $5 an Hour.. MAGIC MAIL PLAN!

THIS MAN..
...is taking out of the machine a Plastic Sealing Job — ordered by mail — only 11c in material cost brings back $2.58 in cash by mail. Capacity of machine: **$28.00 profit per hour of operation.**

Get ORDERS and CASH from your mailman—do work in SPARE TIME at home —or expand into FULL TIME business. Send coupon for Free facts about the newest and most fascinating of all home operated businesses. For the first time a simplified machine brings the fabulous profits of **Plastic Sealing** and **Plastic Laminating** within the reach of the small operator. Anyone can learn to operate the machine with a few minutes practice—then with our **Magic Mail Plan** can get mail orders pouring in daily with cash in every envelope. ***No canvassing—no selling.*** We even supply the circulars you mail to bring back cash and orders. Don't waste a minute. Rush your name. We'll send you FREE and postpaid, pictures, prices, details, and all the facts you need to start. Mail coupon or send name on postcard. No charge.

Warner Electric Co., 1512 Jarvis Av., Dept. L-4-B, Chicago 26, Ill.

Make Thousands of Beautiful Art Creations

COSTUME JEWELRY • CIGARETTE BOXES TRAYS • CANDLESTICKS • COASTERS LAMP BASES • BOOK ENDS...ALL IN SPARKLING COLORED PLASTIC

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At no cost to me, please rush complete details postage prepaid. I am under no obligation.

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BEAT THIS FOR A NEW JOB!

Pays Up to $100 a Week to Start—No Selling of Any Kind Required—Car Furnished or Mileage is Paid on Yours—Business Expenses Paid—Jobs Now Open—We Teach You at Home in Spare Time—You Can Qualify in 6 Weeks!

During the past few years, Auto Claim Adjusting has been having a spectacular growth. Insurance companies everywhere are looking for people who know how to handle this specialized work *—and are prepared to pay a top salary to any man who can fill the bill.* Not only do they pay top salaries; in addition, they offer every opportunity for rapid advancement to executive positions and the high bracket incomes that go with them. And in addition—and because experienced help is so scarce—they offer many fringe benefits practically unheard of in many other kinds of businesses.

Eric P. McNair, L.L.B.

The Terrific Accident Toll Created It!

Why is all this true? You'll find the complete story and the answer in the records compiled by Federal, State and Local authorities. According to these records, more than 25,000,000 auto accidents occurred last year. This means that twenty-five million claims had to be settled—**More Than 69,000 Claims Every Day!**

But before a single adjustment could be made—before a single claim could be settled—*some Claim Adjuster had to investigate the accident!*

Work That MUST Be Done

These investigations cannot be put off. Delays can cost money! Insurance companies cannot afford to let claims drag on—and mount up! They must be settled, because huge reserves of money are tied up by law when claims are unsettled.

It is easy to see why the Claim Investigator plays a leading part in almost every one of the twenty-five million auto accidents that occur each year, and why the demand is so great that there is bound to be a shortage of trained men. There is always a desperate need for trained experts who can take over and make fair and prompt decisions.

But Money Isn't ALL You Get!

The foregoing are *facts*...facts you can easily verify if you care to check with *any* insurance company or *any* law office. And it explains why *even beginners* in the field of Claim Investigating can count on a good starting salary of as high as $400 a month.

But a salary like this is only the beginning. Insurance companies, for example, usually furnish their Claim Investigators a company car and the company pays for the upkeep. Or if he drives his own car the company pays him a mileage allowance to cover operating costs. Nor is that all. Company executives realize the importance of the Claim Investigator's work. Most companies segregate him from the noise of the general office—and install him in a private office of his own—with a private secretary.

HOW YOUR EXPENSES ARE PAID

When a Claim Investigator's work takes him away from his office, the company pays his expenses while he is gone. These expenses may cover travel—meals—living at good hotels, and include incidentals such as cab fares, tips and business entertainment. On top of all these "extras" you usually get a liberal sick leave allowance, hospitalization insurance, life insurance, a pension plan and many other benefits the average working man never dreamed of.

And remember that the Claim Investigator's life is filled with new experiences and new interests. No two cases are alike! Each day presents exciting new problems, and back of it all is the deep, inner satisfaction of having solved them fairly, justly.

You Associate with Important People

In this kind of work you meet interesting people, important people, influential people such as lawyers, police officers, judges. Each one is a new adventure. These are the kind of people worth knowing. They are the kind of people who can help you to get ahead faster and those acquaintances often develop into life-long friendships worth far more than financial gain.

If You Prefer, a Business of Your Own

Even with all these benefits some men prefer to operate their own business. No matter how ideal the job, they want to be "on their own." There are few greater opportunities to do this today than those open to you in the field of Claim Investigating. You can even make your own home your headquarters. You have no office rent to pay—almost no overhead. Your chief expense is the investment of a few dollars for stationery, business cards and office record sheets.

You can even start in your spare time—keeping your regular job until the day arrives when your spare time income is more than the amount of your regular pay. Then you can devote full time to this fascinating work and start to build for a brilliant future—start to win the kind of financial security attained by few men in other fields.

NO EXPERIENCE NEEDED—SOME HIGH SCHOOL EDUCATION IMPORTANT

It's easy to get into Auto Insurance Claim Investigating and Adjusting, once you have learned basic facts. It does not matter in the least what kind of work you may be doing now. Many men in the most humdrum, small pay jobs have thrown off the shackles that bound them to desk or work bench and quickly learned the fundamentals that made it possible for them to step into big pay jobs as Automobile Claim Adjusters. *And all they had to start was a driving desire to get ahead and the determination to see it through!*

SEND TODAY FOR FREE PORTFOLIO

I have prepared a special Portfolio in which I explain carefully to you my "20 Steps to Success as an Automobile Insurance Claim Adjuster." It tells just what to do to get into this fascinating, fast-growing business. There is no charge for this Portfolio—now or any other time. No salesman will call and you will not be under the slightest obligation by sending for it. Mail the handy coupon below to Eric P. McNair, President, Liberty School of Claim Investigating, Dept. 102, Libertyville, Illinois.

MR. ERIC P. McNAIR, President, Dept. 102
Liberty School of Claim Investigating
LIBERTYVILLE, ILLINOIS

Please rush me your Portfolio on the "20 Steps to Success" that clearly explains how I can quickly qualify as an Automobile Insurance Claim Adjuster. It is clearly understood that no salesman will call on me, and that everything you send me now is absolutely FREE, and places me under no obligation whatsoever.

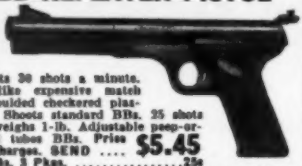
My Age.....

My Name.....
(Please Print)

Address.....

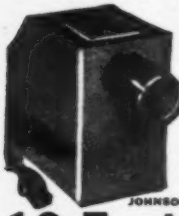
City.....Zone or R.D.....State.....

150 SHOT BB REPEATER PISTOL



New BULLS-EYE 150 SHOT REPEATER. Hard hitting, accurate firing. Centers shots in 1-inch circle at 10 feet. Shoots 30 shots a minute. Sights, feels, looks like expensive match pistol. Thumb-palm moulded checkered plastic grips. Blued steel. Shoots standard BBs. 25 shots for 1c. 10½-in. long; weighs 1-lb. Adjustable peep-or-open sight. Includes 2 tubes BBs. Price $4.95, plus 50c ship. charges. SEND **$5.45**
Copper-Coated Steel BBs, 5 Pkgs. 25c
JOHNSON SMITH & CO. Dept. 780 Detroit 7, Michigan

100X Area Magnifying Projector



— Enlarges Pictures, Printing, & Objects! — Full Color!

NEW! Electric Magna-Vue Optical Instrument projects & enlarges clippings, pictures, sketches, objects in full natural color, correctly & readable. Project on wall, screen or table. *MAGNIFIES 100 AREAS.* Enlarges any material up to 3¼x4 in. to 32x40 in. For home, school, class, business, shop use. Also make signs, sketches easy from any copy. Enameled steel, 10x7½-in. high. Quality 2" focusing lens. Operates on standard 110 volt current. Money back guarantee. *Price Postpaid* ... **$4.98**
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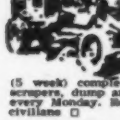

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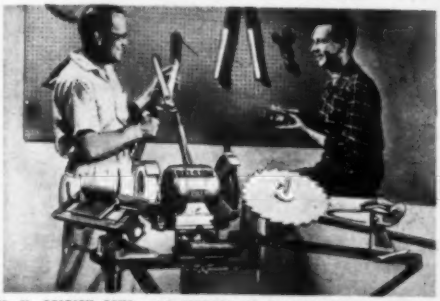

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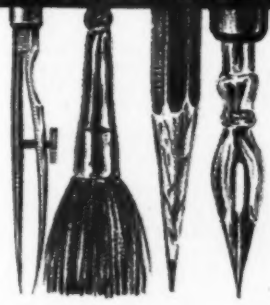

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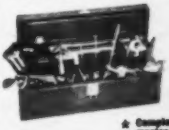

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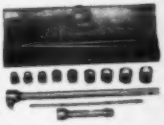

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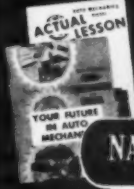

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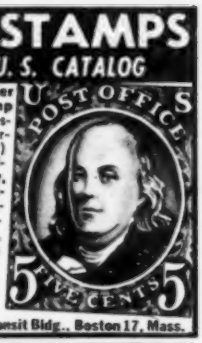

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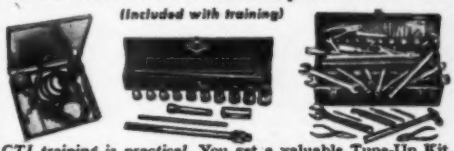

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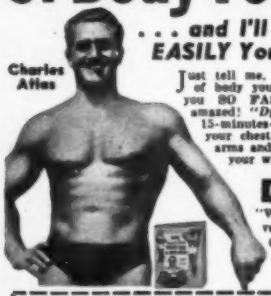

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My proved formula for success in making money is simpler than you might think—just buying good imports at next-to-nothing "below wholesale" foreign prices and selling them in the U.S. by mail order. Also take orders from stores or friends. Others I have shared this plan with have reported big profits. You can make your home your office—your kitchen table your desk. You can use your spare time to help build a fascinating and profitable business!

To most people, importing smacks of mystery, romance and costly things for collectors. Actually, any capable man or woman can use past experience and training to great advantage in the Home-Import Business, To my knowledge, this is the *only* business in which previous experience in almost *any* other field can be used profitably. When you turn to this field of big profit opportunity, you do *not* throw away the valuable experience you've gained through your jobs, hobbies or interests. Rather, *combine* that experience with export-import methods I have proved by taking in millions of dollars. This combination then goes to work *for you* and can easily pay off far more profitably than everyday salary of a "worker."

For example, the mechanic or factory worker has a great knowledge of tools and industrial materials. The salesman or saleswoman whether an "outside salesman" or selling in a retail store has a profound understanding of products sold in the past. Who could be better qualified to deal in office equipment than the office worker? The doctor—medical supplies, equipment. Truck driver—automotive parts, supplies. Beauty shop operator—beauty aids.

I could go on and on — because for almost *every* type of business and hobby, there are *hundreds* of beautifully-made imports at trifling cost abroad for you to offer at a big profit. You will find that you can easily deal with these products because they are "old friends." You'll also find a ready American market for *new* imports — people are always ready to snap up fantastic bargains you can offer. And there are also great opportunities exporting U.S. products.

HOW TO BUY BELOW WHOLESALE

Those who follow my plan will receive free, confidential monthly bulletins which reveal suppliers of new and desirable imports. These bulletins tell you how to contact and deal with traders in foreign lands who urgently need U.S. dollars and offer bargains to get them. They are eager to trade with you or me or anyone who knows the methods I will show you.

A THOUSAND CASH ORDERS A DAY

I have proved this plan with 103 imports — and the opportunities for the sale of thousands more are breathtaking. For example, I have received as many as 1,000 cash orders a day for imported clocks — all by mail order. They cost me only 63¢ and I sell them at a big profit, far below the U.S. market. They are shipped direct to the buyer from abroad, *after I receive the cash.*

POCKET PROFITS IN ADVANCE

So you see, it is even possible to do business of this kind without investing in merchandise. You can take cash orders, pocket your profits in advance, *then* order the merchandise. And you don't have to travel abroad — unless you want to. You don't even have to know a foreign language. You might ask, "Why do you let others in on your plan? Why don't you keep it all for yourself?" The answer is that the demand is virtually impossible to fill. No one person could handle even a small portion of this gigantic market. There's plenty of business in import-export for you and me and many others.

I'LL SEND YOU ALL DETAILS FREE

I have told you a little about the business I have devoted the last 30 wonderfully happy and successful years to, and I'd like to tell you more. But the final decision must be up to you. If you're sincerely interested in learning more about how to start a profitable full or spare time Home-Import Business of your own, write me today. I'll gladly send you a letter with full details. I'll also enclose a list of 157 imports, showing amazing low foreign prices & revealing book, describing some of the profitable businesses operated by followers of my plan. No cost or obligation. Send coupon NOW. Air mail reaches me overnight. **B. L. MELLINGER, Director, Dept. X262, 1717 Westwood, Los Angeles 24, California.**

MAIL COUPON TODAY

B. L. MELLINGER, Director, Dept. X262,
1717 Westwood, Los Angeles 24, Calif.
Rush full details on how to start a profitable Home-Import Business of my own. I understand there is no cost or obligation. (Please print)

Name _____

Address _____

City & Zone _____ State _____

MI

Your advertisement can reach this mail-buying audience of a million readers and more for only $1.00 per word . . . payable in advance (Check or M.O. please) . . . minimum 10 words. Copy to be inserted in April issue must be in the office February 3. Mail to MECHANIX ILLUSTRATED, 67 West 44th St., New York 36, N. Y. Word count: Zone number free. Figure one word: Name of state (New Jersey), name of city (New York); sets of characters as in key (14-D); also abbreviations as 35MM, 8x10, D.C., A.C.

SAVE MONEY • ORDER BY MAIL

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ADVERTISE: 24 WORDS, 100 Canadian Newspapers, $5.50. Lists Free. Advertising Bureau, 10511-B Springfield, Chicago 43.

$50 INVESTMENT—$50,000 PROFIT! Stock Market "Killings"! Fascinating details free! Forecasts, Box 87-MI-5, Pelham, N. Y.

SPECIAL SALE! Oil booming South Louisiana, 2500 names, $4.98. Mailob Enterprises, Box 7103, New Orleans 19, La.

• • • AGENTS WANTED

ATTENTION! HERE is a tremendous potential for men seeking exceptional profits from an accepted, nationally advertised product. No experience necessary, no obligation. Send for powerful, proven sales plan and samples on approval. Special fund raising plan for churches, clubs, etc. Sunshine, 10 Warwick, Springfield 1, Mass. (West of Rockies, write Pasadena 1, Calif.)

CASH COMMISSIONS at once, taking orders for magazines every family wants! No experience needed. For Free money-making kit, with everything you need, write McGregor Magazine Agency, Dept. 361, Mount Morris, Ill.

WILL YOU test new items in your home? Surprisingly big pay. Latest conveniences for home, car. Send no money. Just your name. Kristee 58, Akron, Ohio.

GOLDMINE OF 600 money makers. Free copy. Specialty Salesman Magazine, Desk 7B, 307 North Michigan, Chicago 1, Ill.

FOR EASIEST Extra Money, get samples of 1959's fastest-selling Greeting Card Assortments, Gifts, Exclusive Stationery. Lovelier, bigger values, more profitable. Cash bonus, too. Big line. Samples on approval. $1.25 Gift introductory offer Free. Cardinal, 1400 State, Dept. 8-58, Cincinnati 14.

SAVE MONEY! Buy Wholesale! Free catalog, general merchandise. Norris, 487-J Broadway, New York.

AMAZING GREETING Card Money-Maker—Make $75.00 on 100 Deluxe $1.25 Assortments. Newest 21 for $1 Tall Cards, Gift Novelties, 125 fast sellers. Gift Bonuses besides biggest profits. Experience unnecessary. Stationery samples Free, others on approval. $1.00 Gift for prompt action. Creative Cards, 4401 Cermak, Dept. 519-K, Chicago 23.

EVERY MAN a prospect. Request free sales kit showing line of belt buckles. Individualized with customer's name and emblems, also cap badges for trucking, bus, taxi, police, firemen. Choice 3000 emblems. Hook-Fast, Box 1425MI, Providence, R. I.

BUY WHOLESALE—25,000 Items—Catalog 25¢. Matthews, 1480-D5 Broadway, New York City 36.

PRINTING, ADVERTISING Salesmen—Excellent moneymaking sideline selling Decalcomania Name Plates, small quantities. Automobile Initials. Sign Letters. Free Samples, "Ralco," XL, Boston 19, Mass.

YOUR OWN business—Suits $1.50; Overcoats 65c; Mackinaws 35c; Shoes 12½c; Ladies' Coats 30c; Dresses 15c. Enormous profits. Catalog Free. Nathan Portnoy Assoc., 2109-M Roosevelt Road, Chicago 8, Ill.

GOLD OR Silver Letters, Numbers. Windows, Doors, Trucks. 1" to 6". 500% Profits—Free Samples. Atlas-R, 544 West 79th, Chicago 20.

BUY WHOLESALE: 100,000 Nationally Advertised Products. Appliances, Cameras, Sporting Goods, Housewares, Watches, Typewriters, Tools, Clothing, etc. Discounts to 80%. Buy-Rite, Box 258, Hawthorne 122, New Jersey.

MAKE $50—$300 quickly, easily, showing outstanding All Occasion, Easter, Valentine Cards, Costume Jewelry, Gifts, Imprinted Stationery, Household Items. Costs nothing to try. Bonus to 7%. Special Plan for Churches, Organizations. Write for Best-Sellers on approval, Free Surprise Gift offer, Money-Making Details. Hedenkamp, 361 Broadway, Dept. MI-49, New York.

NO TRICKS—No Gimmicks. Substantial quality home appliance sells on 9 out of 10 demonstrations. Risk no money. Free big profit details. Write Patented Products Corp., Dept. A-2, Danville, Ohio.

EASY HANDWORK makes fast-selling useful articles. Sample free. Sunmade Company, Brockton 64, Mass.

SELL CHAMPION, AC, Autolite Spark Plugs. Reconditioned, electro-plated, guaranteed 10,000 miles. 100% profit. Free sample. City Motors, 2913-M Fannin, Houston 2, Texas.

$1,000.00 A MONTH for making dramatic 3-second demonstration of amazing lightweight Presto Fire Extinguisher. New chemical used by Airforce snuffs out fires instantly. Only $4.95. Terrific commissions. Millions want it. Free Kit. Merlite, 114 E. 32nd, Dept. P-66U, New York 16.

BUY WHOLESALE—shoes, shirts, pants, underwear, etc. Complete catalog. Bostonian, 14-E Dock Square, Boston 8, Mass.

EARN $12,000 YEARLY—only two sales daily. World's Best Seller, The Holy Bible (Illustrated) Protestant or Catholic. Margareta's, P. O. Box 92, Hazleton 11, Penna.

RUN A spare-time Greeting Card and Gift Shop at home. Show friends samples of our wonderful new 1959 All-Occasion Greeting Cards and Gifts. Take their orders and earn up to 100% profit. No experience necessary. Costs nothing to try. Write today for samples on approval. Regal Greetings, Dept. 21, Ferndale, Mich.

MAGAZINE SUBSCRIPTIONS — Highest Commissions-Bonus. Qualified Agency, 451TD Kingston, Brooklyn 25, N. Y.

GUARANTEED HOMEWORK! Immediate Commissions! Free Outfits! Hirsch, 1301-10 Hoe, New York City 59.

CLEANS WINDOWS without mess. Strange "dry" cleaning-cloth. Replaces liquids. Windows gleam. Samples sent on trial. Kristee 59, Akron, Ohio.

NEW CAR Thief Signal. Lightning Seller. Samples sent on trial. Northwest Electric 112, Mitchell, S. Dak.

WANTED FIRE Extinguisher salesman. Huge profits. Out-O-Matic, 1737N E. 31st, Denver, Colo.

• • • SALESMEN WANTED

AD MATCH Sales! Your own business—without investment! Sell for world's largest direct selling manufacturer of advertising matchbooks. Big spot cash commission. Start without experience—our tested sales kit tells you where and how to get order. Men, women—part or full time. Match Corporation of America, Dept. MI-29, Chicago 32.

AMAZING OPPORTUNITY. New low priced fire alarm protects homes, farms, offices, factories, etc. No wiring—hangs like picture. Pays up to $1,100 a month. Free kit. Merlite (Alarm Div.), 114 E. 32nd St., Dept. F-66U, New York 16, N. Y.

ANYONE CAN Sell famous Hoover Uniforms for beauty shops, waitresses, nurses, doctors, others. All popular miracle fabrics—nylon, dacron. Exclusive styles, top quality. Big cash income now, real future. Equipment free. Hoover, Dept. B-102, New York 11, N. Y.

IF YOU'RE interested in making money in selling, see the hundreds of exceptional opportunities in Salesmen's Opportunity Magazine. Send name for your copy, absolutely free. Tell us what you're selling now. Opportunity, 848 N. Dearborn, Dept. 19, Chicago 10, Ill.

GET NEW Shirt Outfit Free: make $90.00 weekly on 5 average orders a day. Famous quality Made-To-Measure dress and sport shirts at $3.95 up sell fast to all men. No experience needed. Full or part time. Write: Packard Shirt Co., Dept. 830, Terre Haute, Ind.

I'LL SEND you Free stocking sample newest advancement in hosiery since nylon. Patented, full-length. Stays up over-the-knee without supporters, without girdle! Nationally advertised price $1.95. Make money introducing to friends at $1.00 pair. American Mills, Dept. 672, Indianapolis, Ind.

MAKE EXTRA Money. Cash commissions. Everybody buys easy-to-sell Advertising Book Matches. Union label. Big variety—Glamour Girls, Scenics, Hillbillies. Powerhouse selling kit Free. Steady repeat business. No experience necessary. Superior Match Co., Dept. F-259, 7528 S. Greenwood, Chicago 19.

MI Classified Advertisements

AMAZING NEW Liquid keeps hands clean forever! Not a cleaner—not a detergent—not a soap, but a sensational new chemist's discovery that vigorously resists soil of all kinds. Terrific 60-second demonstration sells on sight. Big extra profit details Free! Jet Products, Wampum 3, Penna.

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MAKE MONEY! Take big profit orders, famous Fruit Trees . . . including sensational discovery—Starkrimson Delicious Apple! Also Dwarfs, Shrubs, Roses, Vines. Sales outfit Free. Stark Bro's, Desk 30129, Louisiana, Mo.

PUNCHBOARDS. SEND $1.00 for picture catalogue, refundable, first order. Wholesale Distributors, Post Office Box 98, Bothell, Wash.

BUSINESS KIT Free! Postcard puts you in business! Complete line 220 shoe styles, also jackets! New discoveries pay Big Commissions. No investment. Send for Free Kit. Mason, Chippewa Falls K-141, Wisconsin.

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BIG MONEYMAKING Opportunity. Exclusive line uniforms, jackets, pants, shirts, coveralls, sportwear. Advertising embroidered. Every business prospect. Get Selling Outfit Free! Master Co., Dept. K-15, Ligonier, Ind.

AUTO ACCESSORIES, 300% Profit, Free Bonus, Cameras, Television, Luggage. Clyde, 120-J East 82, New York 28, N. Y.

• • • BUSINESS OPPORTUNITIES

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IMPORT-EXPORT OPPORTUNITY, profitable, world-wide, mail-order business from home, without capital; or travel abroad. Established world trader ships instructions for no-risk examination. Experience unnecessary. Free details. Mellinger X-752, Los Angeles 24.

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BE A HOME MANUFACTURER. Make the highest profits. Our Sales Organization gets the orders—helps sell your products. Build luggage and cases for 1001 needs. We supply instructions, supplies—everything. Work full, sparetime. Details FREE. Abarsi, 807-V2 Sunset Blvd., Los Angeles 12, Calif.

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MAKE DURABLE building plastic easily. Beautiful—101 uses—800% profit. Bays Laboratory, Keams Canyon, Ariz.

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EARN BIG Money. Be a Success. Grasp your opportunity now by sending $2.00 for U.S.A. Overseas Job List plus Guide Book aiding you to get the job you want. Futures Unlimited, 222 West 33rd Street, New York City 1.

BOOMING LATIN America! Fabulous Brazil, Venezuela—only hours from the States. New data regarding jobs, opportunities, conditions, American companies employing, etc. All skills required. Salaries to $1,650.00 monthly—U. S. Tax exempt. Bonuses, living allowances, travel expenses, exciting vacations, and more! First hand information direct — $2.00 ($2.35 Airmail) checks, money orders Ok! Paul B. Smith, Apartado 172, Maracaibo, Estado Zulia, Venezuela.

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1000 JOBS all over California. All kinds! All ages! To $900 monthly. Latest directory. $1.00. Personnel Consultants, 1230 Barott Road, Lafayette, California.

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MI Classified Advertisements

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$6,000 FOR MISTER! Mrs.: $3,500! Free "Secret Journal" Plan. Magical! Work home. Publico-JJ2, Oceanside, Calif.

BECOME INDEPENDENT with your own franchise business. Thousands earning handsome incomes. Request interesting facts today. National Franchise Reports, MX-528, 333 North Michigan, Chicago 1.

FORTUNES MADE by prospectors! We teach you! Recognize valuable mineral deposits in your home area. Free information. Modern Prospector, 3433 Essex Road, Cheyenne, Wyo.

MAIL ORDER—Get $25 all profit orders. Free information. Gray Co., 136 Virginia, Vallejo, Calif.

START BIG-PAY Business At Home in spare time. No experience needed to operate little table-top machine for bronzing baby shoes. Make $5.46 profit on every pair. Full particulars Free. Send postcard to Mason, 1512 Jarvis, Room CM4A, Chicago 26, Ill.

INVISIBLE REWEAVING: $5 in one hour possible reweaving burns, tears, mothholes. Spare-full time. Free Details. Skil-Weave, Dept. SC-362, 335 W. Madison, Chicago 6.

ATTENTION! MEN, Women! Earn extra cash, address advertising postcards. Langdons, Box 41107-M, Los Angeles 41, Calif.

AVERAGE $1.00 HOURLY sorting our product at home! Numisales, 328-X Eleventh, West Bend, Wisc.

BUSINESS OF your own. Earning potential as high as $40,000 annually. Issued on $12,500 base. No merchandise to buy. Send for free explanatory booklet. Harrell & Company, Box 8-FF, Louisville, Ill.

PROFITABLE PRODUCTS with Advertising Literature. Schultheis, Box 449, Dept. AMI-2, Irwin, Penna.

GROW MUSHROOMS. We buy mushrooms and pay high prices. Use cellar, shed and outdoors. Spare, full time, year round. We sell 100% pure Cultured Mushroom Spawn. Free Book. Mushrooms, Dept 184, 2954 Admiral Way, Seattle, Wash.

MAKE MONEY Writing Short Paragraphs! No tedious study. I tell you what to write, where and how to sell; and supply list of editors buying from beginners. Many small checks add up quickly. Write to sell, right away. Send for free facts. Benson Barratt, Dept. C-78-A, 7464 Clark, Chicago 26.

FABULOUS PROFITS. Imported Bird Pictures Hand Made With Real Feathers. Free Brochures. Layne Imports, 6950 E. Gage, #6 Bell Gardens, Calif.

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FREE SHARPENING Manual. Good money servicing cutters, saws, cutlery. Thousands doing it. Treyco, North Tonawanda 6, N. Y.

MEN—WOMEN! Start Money-Making Plastic Laminating Business at home in spare time. Material that costs 11¢ brings back $2.58. No canvassing or selling but mail orders bring in $20 a day. Write for full particulars Free. Rush name on postcard to Warner, Room CL-4-A, 1512 Jarvis, Chicago 26, Ill.

$3.00 HOUR POSSIBLE assembling pump lamps. Simple, easy. No house canvassing. Write: Ougor Enterprises, MI-3 Caldwell, Ark.

MAKE MONEY clipping newspaper items for publishers! Newscraft, MI-983-E. Main, Columbus 5, Ohio.

HUGE PROFITS manufacture concrete fence posts. Send $2.00 for plans, instructions. Cratepost, Box 38, Windsor, N. Y.

$30-$60 WEEKLY ADDRESSING envelopes. Instructions $1, refundable. Reiss, 210 Fifth Ave., Suite 1102-B, New York 10.

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MUSHROOMS QUICKER, Easier, Cheaper. Magic Trays. Newest Facts Free. Spawn $1.00. Luxurco, 641 South 19th, Newark 3, N. J.

MAKE $25-$50 WEEK, clipping newspaper items for publishers. Some clippings worth $5.00 each. Particulars free. National, 81-X, Knickerbocker Station, New York.

$15.00 THOUSAND! ADDRESSING envelopes for advertisers! (We make no false claims.) Details 25¢. Barrie, Box 1247N, Jamaica 21, N. Y.

PRIZE CONTESTS provide Fabulous Home Income Opportunity! Latest Books! How and Where to Win Your Share! Send Stamp! National Contest Bulletin, Box 2685-R, Miami 16, Fla.

MAKE MONEY at home. Excellent Opportunity!! Men or women, write: Merrill Histand, Box 182-EX, Hatfield, Penna.

MAIL TRADE magazine has moneymaking opportunities galore. Sample 25¢. Donovan, 79-M Greenbelt, Levittown, N. Y.

$1,000. MONTHLY POSSIBLE, raising Earthworms—African Giants. Backyard, Garage, Basement. Complete Illustrated Booklet, explains raising, feeding, packing, marketing. Only 25¢! Ozark Worm Farm-4, Willow Springs, Mo.

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YOU MAY qualify for a job in the fast moving, highly specialized Diesel and Heavy Equipment Industry with proper training. We have been doing a successful job of training men for the past 18 years. For free information, write Tractor Training Service, Room 10E29, 1525 E. 53rd St., Chicago.

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JOBS—HIGH Pay; USA, So. America, The Islands. All trades. Many companies pay fare. Write Dept. 71K, National Employment Information, 1020 Broad, Newark, N. J.

VENDING MACHINES—No selling. Operate a route of coin machines and earn amazing profits. 32-page catalog Free! Parkway Machine Corporation, Dept. 16, 715 Ensor St., Baltimore 2, Md.

EARN MONEY At Home raising fishworms for us! Backyard, garage, basement. We buy your crop! Inquire: Oakhaven 3, Cedar Hill, Texas.

GROW MUSHROOMS. We buy mushrooms and pay high prices. Use cellar, shed and outdoors. Spare, full time, year round. We sell 100% pure Cultured Mushroom Spawn. Free Book. Mushrooms, Dept. 182, 2954 Admiral Way, Seattle, Wash.

INVISIBLE REWEAVING: $5 in one hour possible reweaving burns, tears, mothholes. Spare-full time. Free details. Skil-Weave, Dept. SC-362-A, Chicago 6.

MUSHROOMS QUICKER, Easier, Cheaper. Magic Trays. Newest Facts Free. Spawn $1.00. Luxurco, 641 South 19th, Newark 3, N. J.

$5,000 FROM HALF Acre growing Ginseng, crop bought. Particulars 10c. Associated Growers, Sperling, Manitoba.

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BARGAINS GALORE! Hundreds of items actually less than wholesale. Free catalog. Walk's Co., Dept. MI, 925 W. Sycamore St., Willows, Calif.

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MAKE $25 TO $35 weekly addressing envelopes. Our instructions reveal how. Glenway, Box 6568, Cleveland 1, Ohio.

$1,000-$5,000. YEARLY POSSIBLE, addressing envelopes, postcards, for advertisers! Further information free. Mann, 427-D, Woodcliff Lake, N. J.

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LARGE FORMULA Catalog 10¢. Big Surprise. Western Chemical, Salem, Ore.

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TREASURE LOCATORS! Exciting handbook 25¢. Howe, 811 Kansas, Atchison, Kans.

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RIBBONS FOR Any Typewriter. Add mach. $1.00, 3 for $2.50. Price list on many useful office items on request. Ty-Add Sales, 139 Elizabeth St., Pittston 2, Penna.

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FREE BUSINESS Printing Catalog; Samples. Howprint, 723-L Eunice, Webster Groves 19, Mo.

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RAREST CC mint dollar 1885 Uncirculated $5.00. Coin Catalogue 25¢. Shultz, Salt Lake City 10, Utah.

INDIAN HEAD cents, two different only 10¢. Approvals. Littleton Coin Company, Littleton 84, N. H.

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32 PAGE DELUXE U. S. coin list 10¢. Stoney, 260 Washington St., Boston 8M, Mass.

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EDUCATIONAL BOOKS! High School Subjects. Lists Free. Franks, 3121 South Racine, Chicago 8.

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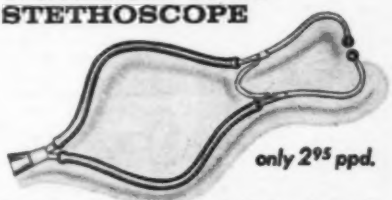

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Mail for McCahill

Uncle Tom is sorry he can't answer all his mail personally. In this column he'll answer the most interesting letters. Write to him at MECHANIX ILLUSTRATED, 67 West 44th St., New York 36, N. Y.

● *Next month my father plans to buy a used car and does not expect to pay more than $500 for it. He plans to put at least 800,000 miles on it. What would you suggest?*

A.K.
Orange, N. J.

A guy with that much optimism doesn't need any suggestions.

● *It's getting so that a man's not safe anywhere any more. I turn on the TV and what do I see? A commercial by a big, bald gorilla. Then to escape I turn to Yachting magazine, where I'm sure I'll find a snug harbor. But no, there you are again! What really threw me though was a credit line "Photos by Tom McCahill." I want you to tell me how you took that photo of yourself batting along in that 30-ft. "home" of yours, The Rooster.*

Jack Isom
Houston, Texas

Long gorilla-like arms.

● *My wife may think you're handsome but, as a farmer, I think you're a menace! They plastered a picture of you on the billboard which faces my main pasture and ever since then my cows have given nothing but sour milk. What do you propose to do about this?*

H.T.B.
Joliet, Ill.

Am sending you a list of yogurt bottlers in your area.

● *My husband and I are proud owners of a 1958 Super '88' Oldsmobile which we bought after I read your article in the July '58 MI. The car has leather upholstery and there are a few soiled areas on the doors. We don't know what preparation to use to clean them. The salesman who sold us the car suggested soap and water! Since I would never wash leather book covers with that, I'd hardly think it would be good for leather upholstery. Can you suggest a type of cleaner and where would it be sold?*

Mrs. W. Russell
Merrick, L. I., N. Y.

Any good saddle soap (which you apply with water) is your best bet for cleaning leather upholstery. You might try Triple-Action Viscol, which I personally use for keeping my leather upholstery in top shape. For real stains, however, saddle soap is the safest. Also, it will preserve the leather. All good leather stores handle saddle soap.

● *A few weeks ago I was stuck in traffic at the Holland Tunnel for more than an hour and a half on my way home. I live in Elizabeth, N. J., and work in New York City. That night I made up my mind that the auto manufacturers have finally defeated themselves—they've built too many cars. I sold my car the next day and we are moving to New York. I hope I never own another car again; a man's a fool to own one these days. Thought you might like to know.*

E.B., Jr.
Elizabeth, N. J.

Glad to hear it, E.B. Now if we can just get 40,000,000 others to follow your sterling example, perhaps driving can once again be fun for us riding idiots.

● *Recently, while returning home from a vacation in Maine, I got on one of the famous New England Turnpikes and found most of the gasolines sold were off-beat brands (not actually off-beat but not major eastern companies) and my three gasoline credit cards were of no use. I was running low on gas and was also very low in the cash department, so I had to leave the pike in order to gas up, which took me many miles out of my way. Why don't the commissioners of these various turnpikes demand that in order to get a gas-selling franchise the oil company running the station must agree to honor all major gas company credit cards? I think in*

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some places they do. I'd like very much to know what you think of this situation.

J.H. King
Baltimore, Md.

Couldn't agree with you more. In many stations throughout the country all credit cards *are* honored. But you're a captive audience once on the pike and you have to take what they dish out—or nothing. That seems to be the typical attitude. There is a rumor that many turnpikes are losing money. All I can add to that is—many of them deserve to.

● *I am 28, considered quite attractive, and work six nights a week in New York City. I drive to and from work since the train schedule at the hours I come home is ridiculous. With all the muggings and such going on, I sometimes get pretty nervous. Several times cars have drawn alongside mine and remarks have been made. As usual, there's never been a police officer around. If I were your sister, what precautions would you advise?*

Helen P.
White Plains, N. Y.

The same thing I advised my own sister: "Get a crew haircut and grow a beard." If this doesn't appeal to you, get yourself a big dog (the best protection in the world) and keep all your windows up and the doors locked from the inside.

● *Would you please settle a disagreement between my father and me? My father says that when you floor a car's accelerator it ruins the timing of the engine and the transmission. I disagree with him. Who is correct?*

Patrick Carone
Rockville Centre, N. Y.

There's a program on TV called Father Knows Best but your old man is the exception to this. However, we must concede that continued jump starts are not the very best thing for the transmission, rear axle or even engine mounts. But how he could conclude it affects the timing is a mystery equal to "What ever happened to Judge Crater?"

● *Back in January 1946 I picked up MI from the PX and read your article where you tested one of the new '46 models. I have not missed an issue since. Dad, you hit the nail right on the head with your last article! It was by far your best. (McCahill Sounds Off On The Auto Slump, Aug. '58 MI.) I don't always agree with Walter Reuther but if he gets on the bandwagon to halt importing foreign cars until these foreign countries start*

[Continued on page 62]

With Champion spark plugs, fire engines roll instantly!
Above: Garden City Park (L. I.) fire department.

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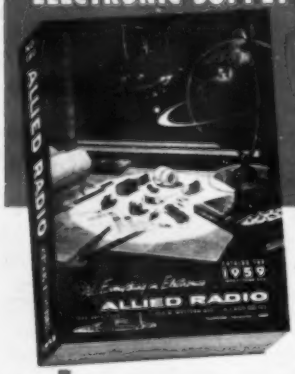

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Mail For McCahill

[Continued from page 60]

importing our new and used cars, then I'll be one of his supporters. I hope some of the knuckleheads in Washington read your article and let some of it soak in.

C. Neptun
Peoria, Ill.

Some of the knuckleheads did. Now they're trying to get Khrushchev to reserve a room for me in Siberia.

● *Your article McCahill Sounds Off should be given much wider publicity but before that happens let's check one point: You include Canada in the list to buy second-hand junk. Isn't it bad enough buying it new?*

R. Horsnell
Strathmore, Quebec

Touché.

● *Last week, while nosing around a local car boneyard for parts, the owner told me he had recently sold a "1917 Chevrolet with the original V8 motor." Not being expert enough to argue, I shut up but I determined to ask you about it. Did Chevrolet ever produce a V8 car before 1920?*

Stretch Meredith
Winnipeg, Manitoba

They sure did and it was a real dog. Ed Cole (Chevy's prexy) and his boys prefer not to remember it.

● *My problem is this: I had a complete motor job ($315) done to my car by the people from whom I bought it four years ago. This motor job included new parts inside such as fuel pump, inserts, etc., but they told me my oil pump was good. Now, after 2,000 miles since the motor job, my oil light still comes on if I slow down to below 20 mph. I've taken the car back repeatedly but they claim nothing seems wrong. I've also been told that a brand-new oil pump was tried and still the red light showed. Over 20 mph the light goes out. The shop manager says he's tried everything he knows to eliminate the trouble and now he gives up. Oh yes, the manager claims to have put an oil gauge reader on to check if I had oil pressure and he assured me that everything is OK. My pressure plug on the block has been changed three times and no change has occurred. Any suggestions?*

Pray Caya
Plainville, Conn.

Many years ago I solved a similar problem for a customer in my shop by carefully pinching the oil line in the right spot with a big pair of pliers. This gave him a tremendous

[Continued on page 64]

Ever wanted to design your own car? Chevrolet lets you come awfully close—with a choice of nine engines, five transmissions, two suspension systems, regular or Positraction rear axles, special cams, solid or hydraulic valve lifters, two air conditioning systems, even Fuel Injection. You name it, chances are Chevy has it. Here's an example of what we mean:

"I 'built' my Chevy to handle like a sports car . . . for five!"

"Take a young architect (that's me) with a Corvette appetite, a one-car budget and a family of wife, three kids and a puppy, and you've got *frustration*.

"That is, you did—until Chevy came out with that terrific four-speed floor-shift gearbox.* The minute I heard that, I knew Chevy had given me the makings of a *family* sports car that would be the greatest!

"Here's how I 'designed' the sweetest handling five-seater that ever came down the pike: First, an Impala two-door sport coupe. Then the 290-h.p. Fuel Injection V8* and, buttoned on right behind it, that *great* four-speed box. (That's the Corvette transmission, you know, with synchro on all *four* gears and that solid, direct floor shift.) The driveline ends up with Chevy's limited-slip Positraction* rear axle to give me real glued-to-the-road traction on gravel, mud or whatever.

"Seat belts, of course, and those optional nylon tires. But I wouldn't add a thing to the genuine road car feeling of Chevy's Full Coil suspension and Ball-Race steering. I've let a lot of my sports car friends drive the Impala and you ought to see the look on their faces after a couple of blocks. Man, I never thought a sedan could feel like *this!*"

It's a fact; here's a car you really can tailor to your measure. Why don't you sit down now and make an outline of what your "ideal" car would be like—we'll bet there's a Chevy that fits the specifications like a glove! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET

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[Continued from page 62]

pressure reading (which is what he wanted) and made both of us very happy.

● *How do you explain the shape of your head?*

J.P.R.
Kissimmee, Fla.

Mother was thinking of a persimmon.

● *Here is a situation that I wish you'd clear up for me. The other day the base paper came out with a picture of a car with the rear window broken into a zillion pieces. The article stated that this was caused because the owner closed his car too tight and on a hot day the pressure inside the car increased to the extent that it broke said window. I don't think there's a car made with a body tight enough to maintain the pressure required to break a window. What is your opinion?*

S/Sgt. Walter J. Delle, Jr.
Patrick AFB, Fla.

I agree with you but—with all the windows closed under a broiling hot sun, enough heat could generate inside so that, when added to the outside heat, it could cause extreme expansion of not only the steel body and window frame but the glass itself. This is often enough to shatter a window. Also, leaving all the windows rolled up under a hot sun will cause a lot more damage than quite a bit of rain with the windows cracked an inch or two. Headlining can pull loose, door upholstery fittings can pop and even the instruments can lose all their delicate light lubrication. Under the right set of circumstances, the temperature inside a car body with all the windows closed can come pretty close to oven heat.

● *In reading the Jan. '47 issue of MI I came upon an article in which you evaluate the foreign cars by U. S. standards. As this was over ten years ago, and both the foreign and domestic products have changed considerably, do you have a new opinion on this ever-controversial subject?*

L. C. Clement
Alexandria, La.

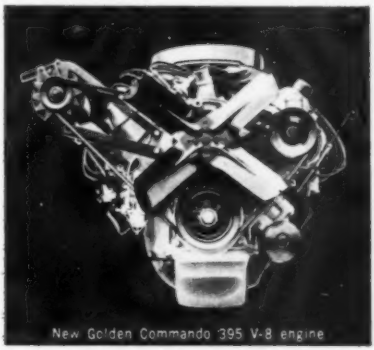
When the article written by me was published in '47, there wasn't a single car made in America that had suspension worthy of the

[Continued on page 66]

NOW PLYMOUTH OFFERS THE BIGGEST V-8 IN ITS CLASS—AT A REDUCED PRICE!

Meet the New Golden Commando 395—bigger and quicker than its 1958 counterpart—yet lower in price! You can get this giant 361-cubic-inch engine with stick shift or new water-cooled TorqueFlite Drive.

Best news about the New Golden Commando 395 is, of course, that lower price. But there's plenty more to gladden your heart, too. For one thing, this special V-8 is now available even in the lowest priced Savoy Sedans and in popular Plymouth wagons, too. For another, there's the astonishing new smoothness and cat-quickness of this engine. For still another thing, it's got the highest torque per cubic inch of any engine built by Chrysler — 395 ft. lbs. at 3000 RPM!


New Golden Commando 395 V-8 engine

Bore of the New Golden Commando 395 is 4.12 inches; stroke 3.38 inches; compression ratio 10 to 1. Maximum horsepower is 305 at 4600 RPM. There's a special high-performance camshaft, 4-barrel carburetor, low-restriction dual exhaust system, positive pressure lubrication system and all the other features you expect in a specially-engineered power plant from Chrysler Corporation. See your Plymouth dealer and test-drive the New Golden Commando 395 in one of his sleek, sure-footed new Plymouth models soon!

TODAY'S BEST BUY . . . TOMORROW'S BEST TRADE **Plymouth**

[Continued from page 64]

name or brakes capable of stopping at high speed. All good top-grade foreign sedans were superior to our products then but the picture changed considerably in the next few years. By 1957, some of our sedans were the best road-family cars in the world. Some of them were superior to anything being made in Europe from an engineering standpoint.

After having tested a number of the '59 models, it's evident that we've slipped back quite a few notches. Only one camp is still making cars that are superior to most of the European offerings in roadability and safety. As it stands today, the top-grade European imports are far ahead of us in quality but we have most of them backed against the wall in engineering.

However, our cars generally are not as good as they were two years ago. For a definite example of how the foreign vs. domestic hassle stacks up, take the Imperial. From the standpoint of ease-of-handling, roadworthiness and roadability, plus performance and safety, it is superior to the Rolls, Bentley or Mercedes 300. However, it's no match for any of these in quality or workmanship.

● *Do you consider yourself the best automobile tester in the US?*

George Edge
Kansas City, Mo.

If you think modesty is going to force me to say "No"—you're nuts!

● *Was surprised to read in the October MI that you fish with Lew and Del Parkinson at their Sailfish Center. I've fished with Lew for several years, too. He's the best in the business. However, you gave the wrong address. In case some of your readers want to contact him, the address is: Capt. Lew Parkinson, Sailfish Center, Palm Beach Shores, Riviera Beach, Fla.*

Ed. Hickey
Wilmington, Del.

Thanks, Ed. Palm Beach Shores being only a mashie shot across the inlet from Palm Beach, I wrote the latter without thinking. I also realize you're right—some local stuffy postal employee might not bother forwarding any mail as it is a different town.

—Tom McCahill

Draw Lincoln

YOU MAY WIN A $430.00 SCHOLARSHIP IN COMMERCIAL ART

Winner gets a complete art course — free training for a money-making career in commercial art, illustrating or cartooning.

You are coached, individually, by professional artists on the staff of world's largest home study art school. Many successful artists have studied with this school, founded over 40 years ago. It's an accredited member of the National Home Study Council. Contest winner also gets a drawing outfit and valuable art textbooks. Try for this free art course!

ART INSTRUCTION, INC., STUDIO 2069
500 South 4th Street, Minneapolis 15, Minn.

Please enter my attached drawing in your contest. (PLEASE PRINT)

Name_____ AGE____

Address_____ Apt.____

City_____ Zone____ County_____

State_____ Occupation_____

DRAW LINCOLN'S HEAD

5 inches high. Use pencil. Drawings for March 1959 contest must be received by March 31. None returned. Winner notified. Amateurs only. Our students not eligible.

BUY GRAVELY FOR

MORE PERFORMANCE
MORE POWER
MORE FOR YOUR MONEY

Why plow with equipment you have to push, pull and help? Gravely and its Rotary Plow attachment tills a perfect seedbed in *one operation*—all you do is guide it!

Gravely does the tough jobs other tractors can't . . . because Gravely has *reserve* power—now 6.6 Horsepower! Improvements in design and quality make the new Gravely an even better buy than ever!

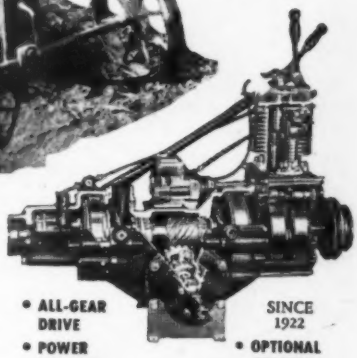
INVEST in the BEST!

UNMATCHED PERFORMANCE

Choose the tools that fit your jobs from 30 year-round attachments. All powered by one Gravely tractor!

Do the job *better* because power attachments are driven direct from the engine by splined steel shafts and gears. No belts or chains to slip, wear or break. More power *at the working tool!*

A FREE demonstration by your local sales and service representative will show you, beyond doubt, that the Gravely and its attachments will do your jobs *better, faster, easier.* Compare. You will see that you get *more* power, *more* performance, *more* for your money!



- **ALL-GEAR DRIVE**
- **POWER REVERSE**
- SINCE 1922
- **OPTIONAL STARTER**

Power attachments *securely* mounted by only four bolts. Balance, easy handling, simple controls. Cutaway view shows Gravely's clean, compact, power-engineered design—the reason for its remarkable performance. Make the wise choice—*choose* Gravely!

EASY PAY PLAN

FREE 24-PAGE BOOKLET!

Big, 24-page illustrated booklet, *"Power vs Drudgery"*, shows how the Gravely solves your lawn and garden problems . . . Write for it today!

FREE! MAIL NOW

GRAVELY TRACTORS, INC.
P.O. BOX 603-B DUNBAR, W. VA.

Please send "Power vs Drudgery" Booklet and dealer's name to:

Name_____

Address_____

Town_____ State_____

OPTICAL BARGAINS

TAKE PHOTOS of the MOON

Through Your Telescope with EDMUND CAMERA HOLDER for TELESCOPES

Bracket attaches permanently to reflecting or refracting telescopes. Removable rod holds camera over eyepiece to take pictures of Moon . . . or terrestrial telephoto shots of distant objects. White metal projection screen permits you to see the sun spots! Includes brackets, 23¾" rod, projection screen, screws, directions.
Order Stock No. 70,162-B ..... $9.95 Postpaid
(Send Check or M.O.—Money-Back Guarantee)

SALE! TERRIFIC WAR SURPLUS BARGAIN!

AERIAL CAMERA LENSES

Gov't. Cost $1218—Now Low as $39.50 Used Made by B & L and E.K.—24" F.L. f/6, in 23" long Lens Cone. Use as long range, Big Bertha Telephoto lens—for Richest field (wide field, low power) telescope, etc. Lenses are 4" dia.—precision 4-element type, Aero Tessar and Aero Ektar. Easily removed. Diaphragm (f/6 to f/22) is included. Opens approx. 1" to 3¼". Lens and cone—wt. 25 lbs. Sturdy carrying trunk—wt. 26 lbs.

Stock No. 85,060-B 24", used. Price $39.50 f.o.b. Utah
Stock No. 85,080-B 24", new. Price $59.50 f.o.b. Utah

SPECIAL! SPECIAL!

Complete Optical Kit! Build a 6" Reflecting Telescope! (Described in Mech. Illus. Feb. & March 1958 issues)
Consists of plate glass mirror blank; tool; 2 finely ground and polished lenses to make ¼" F.L. eyepiece; first surface diagonal mirror; magnifying lens; 3 abrasives; pitch.
Stock No. 70,154-B ..... $9.00 Postpaid

Stock No. 70,804-B . . . Deluxe Kit with Pyrex mirror blank—1" eyepiece lenses ..... $11.95 Postpaid

WRITE FOR FREE CATALOG "B"

Complete Line of Astronomical Telescope Parts and Assembled Telescopes. Also huge selection of lenses, prisms, war surplus optical instruments, parts and accessories. Telescopes, microscopes. Hand Spectroscopes, Sniperscopes, binoculars, etc. Request Catalog "B"!

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Name ..... Age .....
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Dear Editor

[*Continued from page* 28]

• *December Mystery Solved*

Four men, one of whom was known to have committed a certain crime, made the following statements when questioned by the police.

Archie: Dave did it.
Dave: Tony did it.
Gus: I didn't do it.
Tony: Dave lied when he said I did it.

If only one of these four statements is true, who was the guilty man? If only one of these four statements is false, who was the guilty man? Answer: a—Gus; b—Dave.

• *Message From 124C 41*

May I call your attention to the fact that the feature article, Learn While You Sleep, on page 61 of your November issue, did not give credit to me as the originator of the method, as you will see from the attached brochure. In fact, not only did I originate the method, but the term "learn-while-you-sleep" was coined by me, too. This method was first described in my former magazine Modern Electrics in 1911.

Hugo Gernsback
New York, N. Y.

FREE! 100 WORLDWIDE STAMPS . . . just released!

Send today for 100 scarce, beautiful stamps — FREE! Get newest issues of last 12 months, including United Arab Republic, Belgian Atomium, Morocco, Zanzibar — everywhere. So new, *some are not cataloged yet.* All *different, genuine,* mint and used, bi-colors, pictorials, topicals. This FREE Worldwide collection has *never been offered before.* Supply limited, one packet per collector. Send for this rare offer today, plus helpful "Collector's Guide" and other offers for free inspection. Rush name, 10c for handling to GARCELON STAMP CO., Dept. MI2W, Calais, Maine.

GARCELON STAMP CO. Dept. MI2W, Calais, Maine
Rush FREE 100 Different Stamps, Collector's Guide, other offers. Enclosed 10¢ for handling. (PLEASE PRINT)

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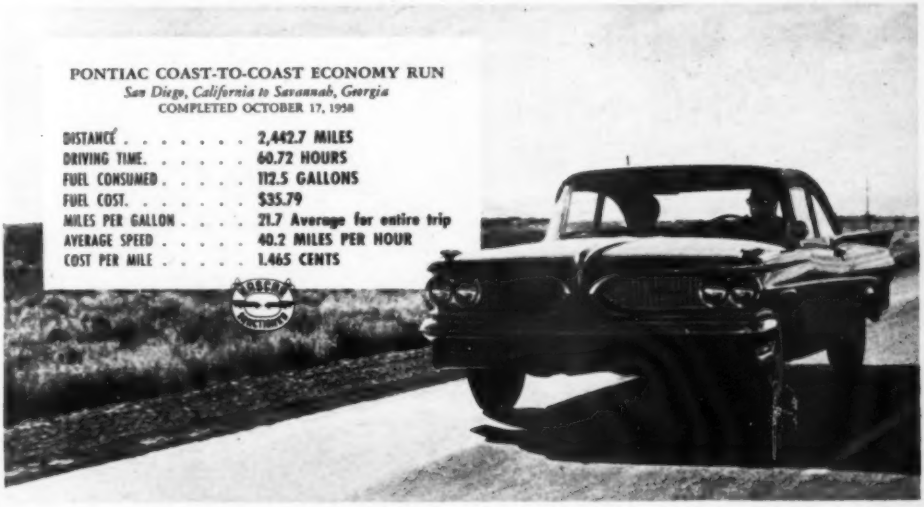
COAST TO COAST ONLY 1½ CENTS PER MILE FOR GAS!

Pontiac's new Tempest 420E V-8 sets the year's most important economy mark—Here's the story and what it means to you!



We asked one of America's most respected car testers—"Uncle Tom" McCahill—to put a standard Pontiac Catalina Sedan with our new economy V-8 to the test.

And with only one specification—that the run would be exactly like *you* would drive coast to coast yourself—in mountains, in city traffic, across deserts, buying gas wherever the tank ran low.

And here's the phenomenal story in every complete detail—all officially certified by NASCAR, America's top automobile competition authority.

What does it mean to you?
Simply—and very importantly—this: For the first time, you can get deep-chested V-8 pep with better mileage than from many smaller so-called "economy cars" . . . and get it on regular fuel!

If you owned a Pontiac with this new Tempest 420E V-8 you'd be saving up to 5 cents a gallon on regular fuel. This remarkable new economy V-8 is optional at no extra cost on any Pontiac!

See your Pontiac dealer soon—and discover the newest in V-8 performance and economy!

PONTIAC!

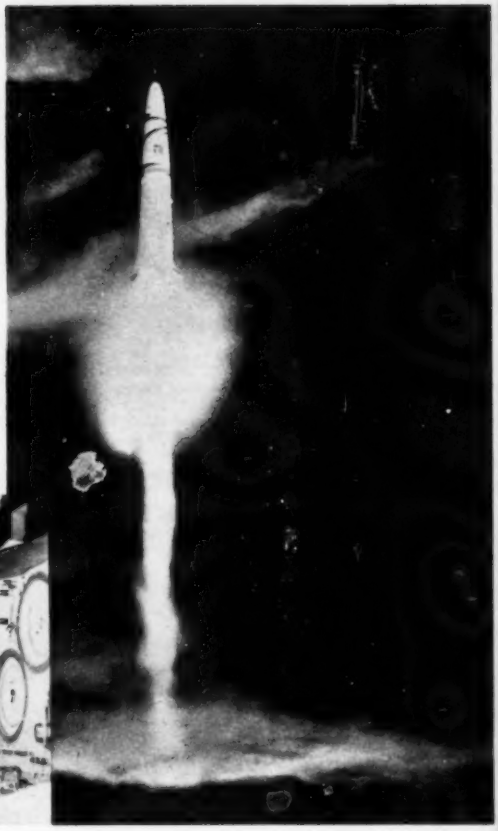
America's Number ① Road Car

3 Totally New Series • Catalina • Star Chief • Bonneville

PONTIAC MOTOR DIVISION • GENERAL MOTORS CORPORATION

THE ONLY CAR WITH WIDE-TRACK WHEELS

FORMER SERVICEMEN: MAKE YOUR SKILLS PAY OFF WHERE THE AGE OF SPACE IS REAL



AS A SPECIALIST IN THE U.S. AIR FORCE

With the new Age of Space, more and more men are finding that their previous military training can really pay off in the U. S. Air Force. If *you* have a skill the Air Force needs, you, too, can step into an important job. You'll work with the latest equipment, learn the newest techniques of your specialty—and look to a future that's guaranteed. Find out if there is a place for you, where the Age of Space is *real*. See your local Air Force Recruiter, or mail the coupon.

PASTE ON POSTAL CARD AND MAIL TO:

Prior Service Information, Dept. MI-9321
Box 7608, Washington 4, D. C.

Please send me more information on the Air Force Prior Service Program.

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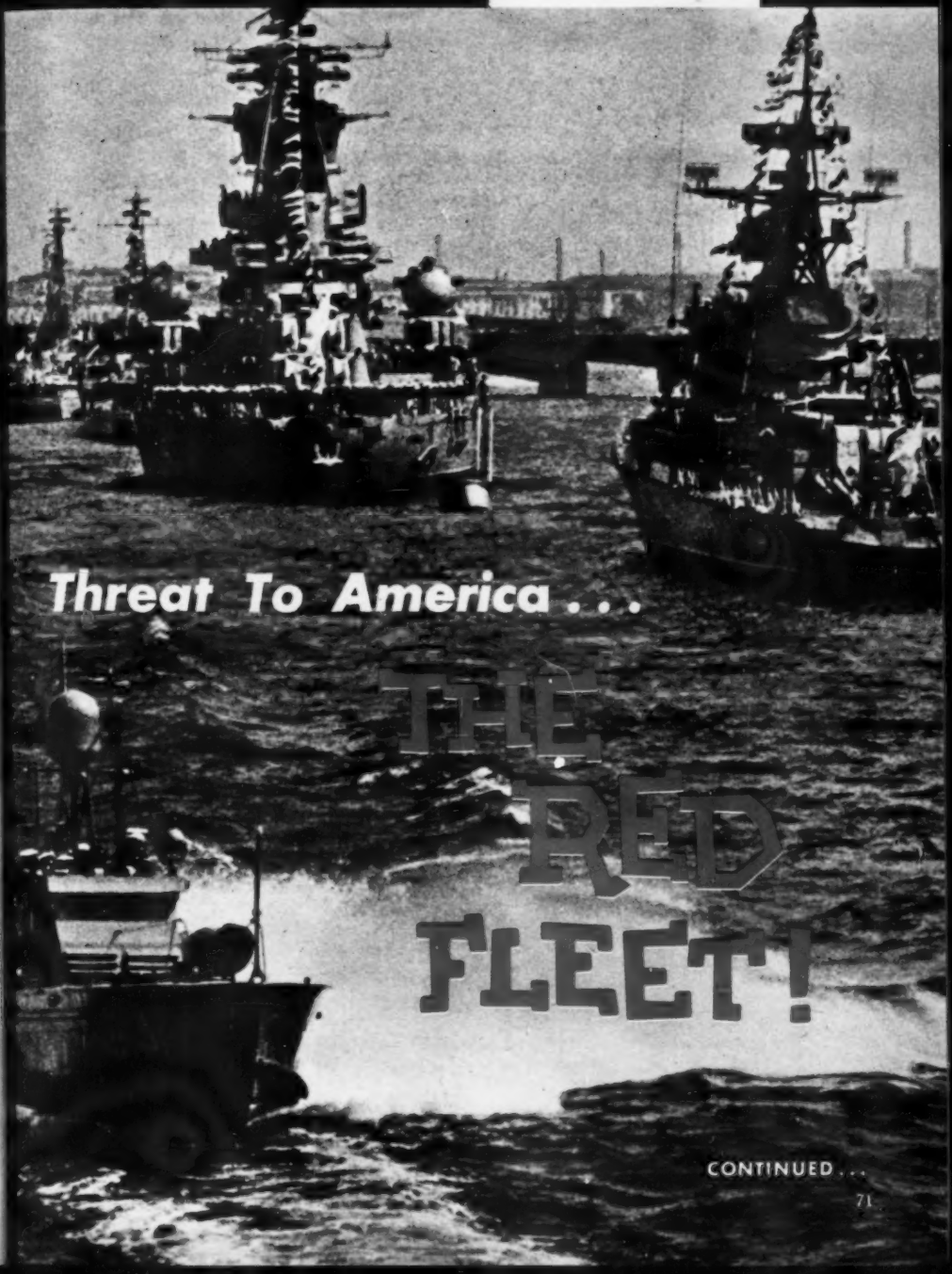
Mechanix Illustrated

1959



CONTINUED . . .

THE RED FLEET!

By Arthur Kranish

While we raise massive defenses against the Red air menace, the Russians are building an atomic navy designed and trained for global domination.

HUGE atomic submarines for round-the-world espionage or attack missions. . . Fantastic new missiles ready to flatten almost any city in the U. S. from under-sea hiding. . . . Hundreds of new, missile-carrying cruisers and destroyers. . .

This is the new Russian Navy, a fleet that may soon be powerful enough to isolate and destroy this nation in a single sneak attack.

A Pentagon study of this seaborne threat shows that at any moment a handful of sleek Red submarines and missile-launching ships, disguised as merchantmen and spotted strategically off the Atlantic, Pacific and Gulf coasts, could kill an estimated 65 million Americans, destroy our industrial might and cripple our power to retaliate.

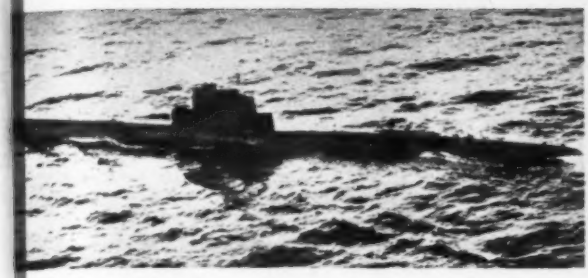
Is the Red Navy Russia's prime secret weapon? That's what our top defense planners are wondering today. Have the men in the Kremlin, they ask, bluffed us into a massive buildup against possible air attack, while quietly embarking on a gigantic campaign of naval expansion?

With the suddenness of a nightmare Russia's mysterious naval force has grown in size and striking power. Since World War II the Soviets have quietly built more modern cruisers and destroyers than the rest of the world combined. Her huge sub fleet prowls the globe, her immense atomic icebreaker threatens to blaze new attack routes in the Arctic, her vast array of surface ships stands ready to sever the lifelines binding the free nations together.

It was only a few years ago that the Russian Navy was considered a second-class flotilla among the world's great sea-going powers. Her leaders were poorly trained, her equipment antiquated, her reputation sullied by disgrace in combat and by Moscow politics.

What happened? What caused the

SVERDLOV, a cruiser of the new Russian Navy, is shown in the U. S. Navy photo at left. It is one of the ships of Russians' huge "conventional" fleet built after WW II. Right: model of the atomic icebreaker Lenin, built to blaze new Arctic lanes, possibly for warships.



RUSSIAN SUB in the North Atlantic. More than 450 Red subs have now been commissioned—a fleet eight or nine times that of the Nazi U-Boat armada. Red yards can build 100 long-range subs in a year.

sudden, spectacular growth that now threatens us all?

Someone in the Kremlin, our experts believe, finally took a good hard look at the map. He saw that two-thirds of the Earth is water. He saw the United States pouring millions into air defense while ignoring more than 6,000 miles of vulnerable coastline. He saw the day when long-range missiles launched at sea could bring virtually all of the U. S. into easy range. He gave the orders.

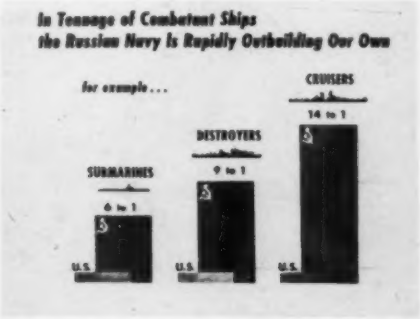
Suddenly, Communist shipyards began to hum. There was no time for research and engineering. Instead, advanced designs from the drawing boards of a vanquished German Navy were speedily adapted to Russian use. Ideas, and even components, from Britain and the United States were pressed into service.

Soon Allied intelligence officers began receiving reports from behind the Iron Curtain that showed Russia was outbuilding the U. S in submarines by six to one, in destroyers by nine to one, in cruisers by 14 to one.

This has been warning enough that an important revolution in strategy may be in the making. But it hasn't helped our own Navy speed its modernizing plans.

Witness this grim estimate by Vice Adm. T. S. Combs, Deputy Chief of Staff: "Our ships are aging faster than they are being replaced. We are now at the point where large numbers of our ships are close to their 20th birthday—and unless we intensify our efforts now, by the middle 1960s our forces will be grossly inadequate to meet the challenge of a fully modern Russian Navy on the high seas."

Each day that margin of safety looks less assuring. Right now the Kremlin controls the largest submarine force in naval history, much of it capable of operating within sight of our coastlines. More than 450 [*Continued on page* 175]



AUTOMATIC CHOPSTICKS

BUNGLERS who have never mastered the intricate art of using chopsticks can take heart. Automatic chopsticks are now available! The great new chop suey-eating tool is jointed and has a small, concealed spring that does the trick. You can pick up a grain of fried rice with the aplomb of a burglar and amaze your friends. The machine-age chopsticks are available at Zinn Originals, New York, N. Y. Price is about $5. A word of caution—in the eyes of the true chopstick connoisseur, you will not be a straight-shooter. •

NEW MERCEDES DIESEL

MERCEDES-BENZ, pioneer of the fuel injection system, now offers its customers a choice of two Diesel-powered automobiles. The two models are the new 190 D, shown, and the 180 D. Externally, no difference can be noted between the gas and Diesel-powered jobs. The 190 D has a top speed and cruising rate of 75 mph. Fuel consumption on the Diesel car, according to Mercedes, averages about 35 mpg. It is interesting to note that six Mercedes Diesel cabs are now operating in New York City. •

AIR ENDURANCE RECORD

THE world's record for non-stop endurance flying is now 50 days or 1,200 hours. The pilots who did it are two Dallas boys, Jim Heth and Bill Burkhart. The toughest job was refueling their Cessna 172 with its Continental engine. They flew just ten ft. above the runway and picked up fuel in plastic containers from a moving truck with the sky hook shown dangling from their machine. The Cessna was airborne from August 2 to September 21, 1958. •

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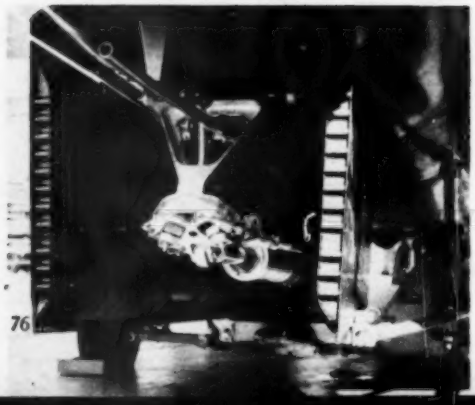
MIMI

WHAT very well may be the longest brush in the world is the object of MIMI's affection this month. The brush is the Osrow Whirl-A-Way with a 15-ft. handle. The jointed unit is designed as an outside window and house washer. The handle connects to your garden hose. Pull on the container-handle grip and dispense liquid detergent for soaping. Push on the grip for rinsing. The center of the brush revolves at 1,500 rpm. Osrow Products, Inc., Glen Cove, N.Y., sells the $14.95 Whirl-A-Way. •

UNVEILING THE X-15

Photos from Levy-Artof



Model: North American X-15, a manned, hypersonic research aircraft.
Length: 50 ft.
Height: 13 ft.
Wing area: 200 sq. ft. in a 25° sweep-back.
Weight at launching: 31,275 lbs.
Cargo: Pilot plus 1,300 lbs. of instruments.
Fabrication: Inconel-X, titanium and stainless steel to withstand temperatures in excess of 1,000°F.
Engine: Initial tests with two Reaction Motors XLR-11 engines. Test flight with single Reaction Motors XLR-99 Pioneer rocket engine.
Fuel: LOX and liquid ammonia.
Thrust: 50,000 lbs.
Speed: 3,600 mph.
Landing gear: Dual nose wheel and rear skids.
Assignments: To research flight conditions beyond the earth's atmosphere. To increase knowledge of aerodynamic heating and heat transfer. To provide answers on control requirements for vehicles operating in a near vacuum.
Test flight date: February, 1959.
Pilot: Scott Crossfield, North American test pilot. The X-15 will then be turned over to NASA and Air Force pilots for further tests.
Cost: Under Navy, Air Force and NASA contracts through 1960—$121,500,000.

FIRST ROLL-OUT, at top of page, shows X-15 on dual nose wheels and temporary rear dolly. Left above, exhaust of twin XLR-11 engines. Below, actuator of bottom speed brake.

NOSE CONTOUR and trailing edges of wings are surprisingly blunt. In flight, pitch and yaw will be controlled by small ballistic rockets set into nose and wingtips. Bottom part of tail was taken off for rollout, will be replaced for flight. Only movable surfaces on the wings are the flaps.

DROP LAUNCHING is shown in drawing below. After release from B-52, the X-15 will rocket upward to 100-mile altitude.

TALKING BY NUMBERS

3283 1621 1 2047 1705 467 1800.

The above sentence in Logography, a new international language devised by Dr. Hans Binem of Denmark (photo above), means "This is a new language called Logography."

The beauty of Logography is its simplicity. The first sentence of numbers in this article means the same thing in English as it does in French, German, Spanish and Scandinavian languages—and can easily be extended to include Chinese or any other language.

Dr. Binem's slogan, "Nothing to learn, nothing to remember" just about sums it up. Note the illustration at the top of this page. It is a section of a page from the inventor's American-English list of words using the Logography system.

You will notice that each word has an assigned number. The numbers, incidentally, are odd ones. Dr. Binem is reserving the even digits for the growth of his system which now has about 2,000 basic words with corresponding numbers. If you want to send a message you look up the word in your Logography manual and put down its code number. That's all there is to it.

The person who receives your message deciphers it by taking out his Logography book, looking up the number for each word and translating the message into *his* language.

International Morse code is used by Dr. Binem for spelling proper names; the code is printed in the back of each manual.

Dr. Binem forsees many uses for his unique numbers system, including international business letters, telegrams and pen-pal letters.

Dr. Binem says, "The slight trouble to translate words to and from numbers opens the possibility of valuable and interesting personal contact to knowledge and friendship anywhere in the world."

Dr. Binem was born in Poland but came to Denmark with his family when he was five. He had his numbers system in mind for quite a few years but didn't begin working on it seriously until 1954.

Esperanto, Interlingua and other languages have an essential defect. Dr. Binem says, "They must be learned while the ideal must be a language which can be used immediately."

He believes his unique numbers language may contribute to world peace by making communications between the great powers clearer and more simplified.

3809 523 1509 1627 3889. 901 4003?

Which means "We certainly hope it will. Do you?"

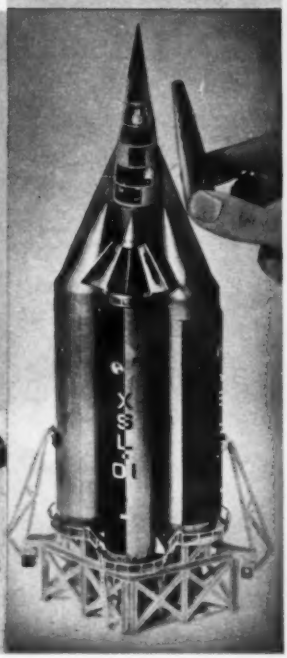
If you want more information about Logography and wish to become a member of the world-wide fellowship, write to Dr. Binem, c/o the Logography Center, Nakskov, Denmark.

—*Ib Eichner-Larsen*

Miniature

SPACE SHIP

REVELL'S new three-stage rocket space ship model is a projection of what leading scientists believe could be the first manned space vehicle to the moon. Named the XSL-01 (Experimental Space Lab), the ship is assembled from a 108-piece kit. Revell designers got advice from Systems Laboratories Corp. and from Ellwyn E. Angle, space scientist. Ship has detailed manned cockpit and a landing pad, a space glossary and a complete flight program—all for $1.98. •

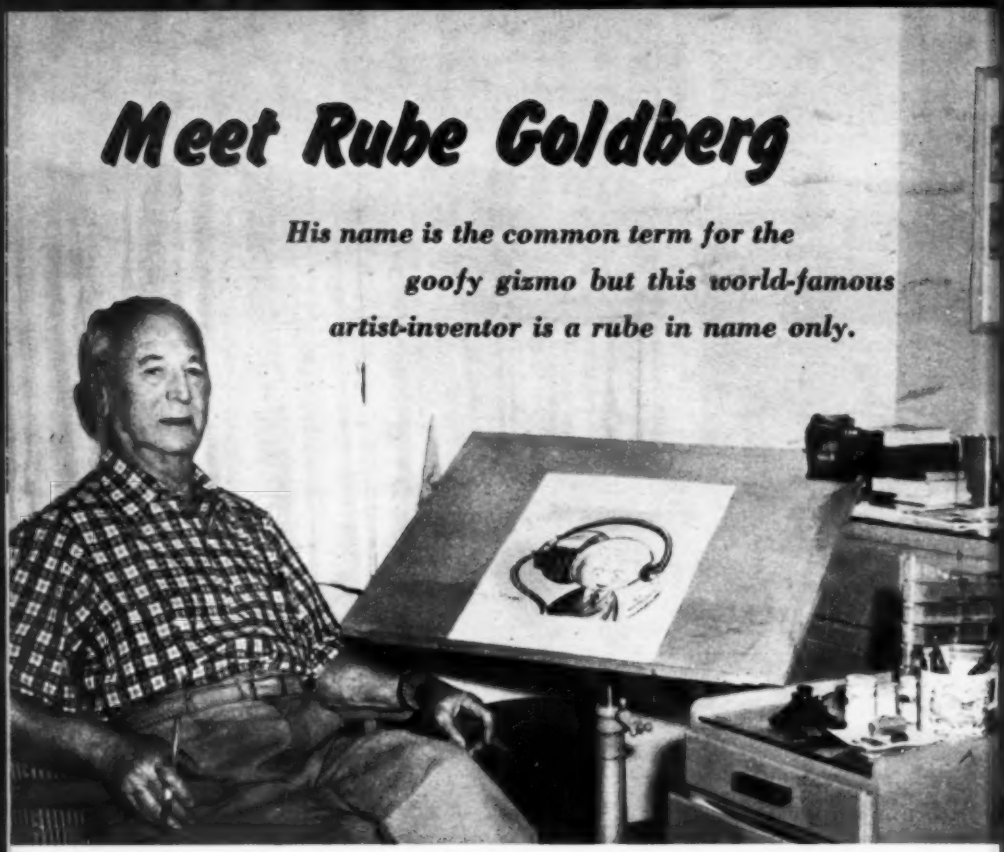


ONE-WHEEL TRUCK

TRAILMOBILE, Inc., the nation's second largest trailer builders, recently found plans of what may have been the granddaddy of all trailer-tractors—the "motor wheel" shown in the accompanying pictures. Manufactured more than 60 years ago by an outfit bravely styled the International Motor Wheel Co., it was invented by one J. W. Walters. The unit consisted of a rubber-tired wooden wheel propelled by a two-cylinder, air-cooled gasoline motor mounted with a heavy flywheel on one side of the fork; on the other side were twin gas tanks. The steering wheel turned the whole unit; to reverse, you turned it right around. Or you would have, if you'd had the chance to drive it. Few ever did. The idea of a petrol-eating horse for a wagon was great, but the motor of the period wasn't. •

Meet Rube Goldberg

His name is the common term for the goofy gizmo but this world-famous artist-inventor is a rube in name only.



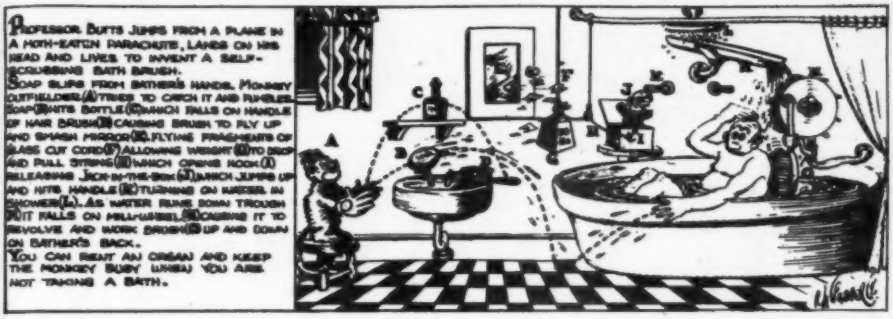
THE NEW RUBE: he halts work a moment on cartoon contrasting U. S. and Red propaganda.

By Wilson Curry

ONE of the world's most famous inventors has just completed his 2,001st gadget. In honor of the occasion he offers his latest creation free to his fellow Americans. Anyone who wants to mass-produce it may do so, royalty-free.

It's a method for getting a dull comedian offstage. Here's how it works: 1. A barber shop quartet sings a sad song. 2. It's so sad a little man standing nearby cries big tears into a flower pot. 3. The plant in the pot grows until it tickles the bare feet of a boy sitting atop a slide. 4. The kid slides down, bumps a Civil War bugler at the bottom. 5. Bugler wakes up, leaps to his feet and begins blowing reveille in another Civil War vet's face. 6. Second vet catches cold from the breeze and sneezes into a propeller. 7. Propeller revolves, operating two hands holding broom. 8. Broom sweeps comedian off stage or platform.

Of course there's only one man who could—or would—dream up that invention: the fabulous Reuben Lucius Goldberg. The world's most famous Rube, now 75, is actually starting on his third thousand inventions. For 55 years he has been at this business of devising fantastically complex ways for getting simple things done. His name has become both a noun and an adjective in common use. "That's a real Rube Goldberg," people say of a new fishhook disgorger or, as a switch, "That's strictly Rube Goldberg." Rube has given his name to one of the most amusing and touching of humanity's foibles—the mad, courageous tendency to make



DO-IT-YOURSELFERS should cherish Rube's self-scrubbing bath brush, a gem of nonsense.

mountains of molehills in hopes of profit and glory.

Recently Rube went to a 50th class reunion at the University of California. When he saw what the students and faculty had rigged up in his honor he felt almost out-Rubed. The boys had created a huge machine with flashing lights, balloons that swelled and deflated, wheels that spun, gears that meshed, pulleys that pulled, bells than clanged.

And what did it do? "Not a blessed thing," says Rube. "It was the gol-darndest thing. It did nothing but you couldn't beat it for impressiveness."

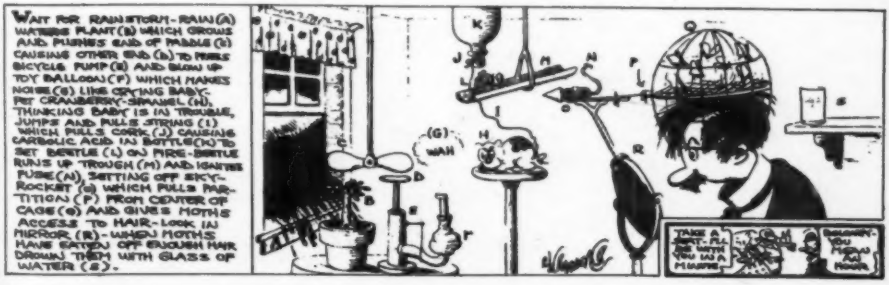
Rube's own inventions usually do something. An 18-step process ends up swatting a fly; almost equally devious Goldberg methods will find lost eyeglasses or wipe your face with a napkin.

Analyze Rube's first 2,000 inventions —as this earnest reporter actually did, and nearly went nuts—and you'll find they fall into three categories. In one category Rube tries to solve real life problems that get people down, year in, year out. How does a fat girl reduce? She eats sitting on a scale. As the scale registers a certain number of added pounds it moves a magnet towards a steel arm that tips a golf ball onto an ant-hill. A midget golfer, a duffer, swings at the pill and hits the hill, spilling ants. These attract an anteater, which is leashed to the dinner table. The anteater pulls the calorie-laden table away from the lady. See?

In his second category Rube deals with social problems you run into only now and then. Here's how he beats the difficulties of eating a buffet supper: shirt studs that hold salt and pepper; a bow tie that unfolds into a tray to hold dessert; drop-shelf breast pockets for side dishes; extension trays from pants pockets for main course; a flattop haircut for fruit.

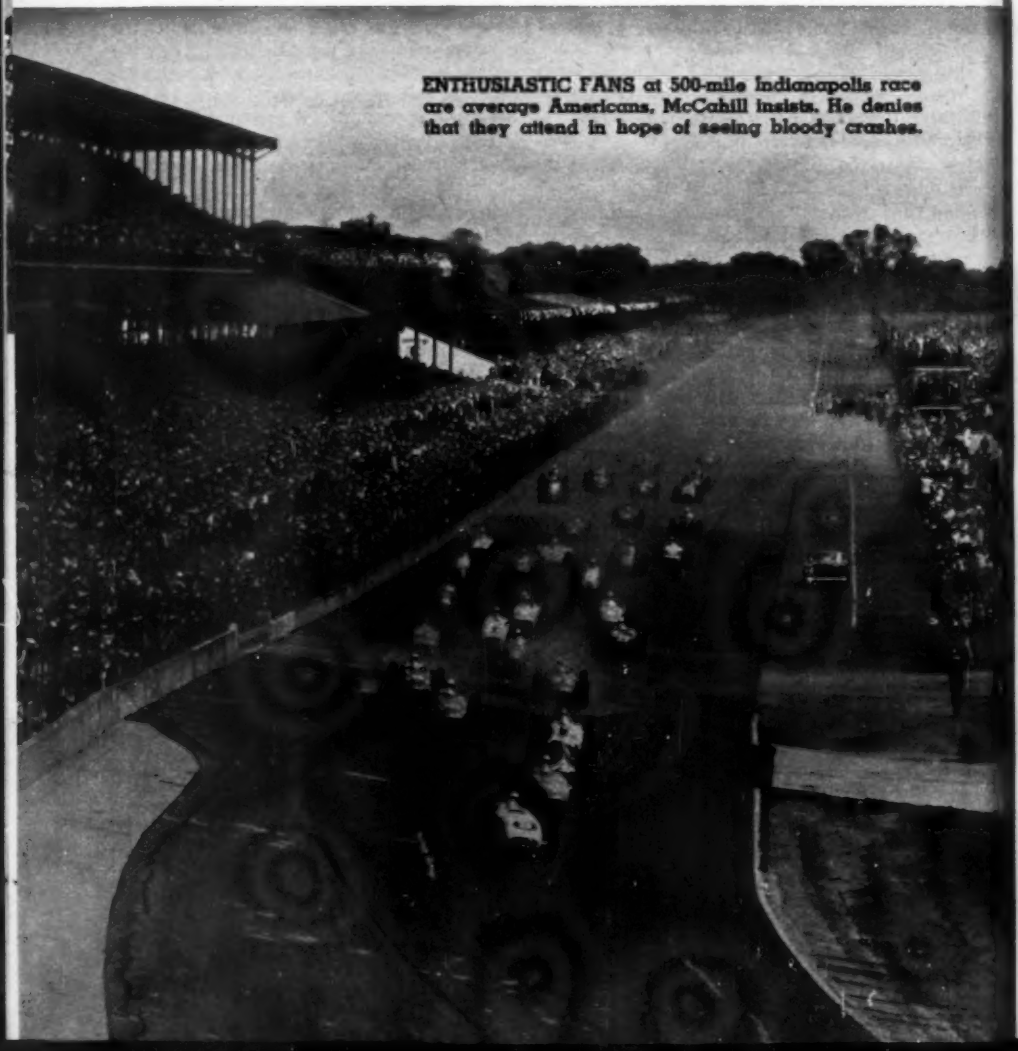
The third [*Continued on page* 182]

HAIRCUT COSTS got you down? Try this efficient scheme for cutting your own at home.



McCahill Tells . . .

THE REAL FACTS ABOUT AUTO RACING



ENTHUSIASTIC FANS at 500-mile Indianapolis race are average Americans, McCahill insists. He denies that they attend in hope of seeing bloody crashes.

Replying to last month's blast against the sport by U.S. Senator Neuberger, Uncle Tom defends racing with some surprising facts.

By Tom McCahill

IN last month's MECHANIX ILLUSTRATED Senator Richard L. Neuberger attacked auto racing as "wanton, tragically unnecessary bloodshed . . . shameful and uncivilized." Branding it with such words as "carnage" and "massacre" he demanded that the sport be outlawed.

An automobile writer is not often thrust into the position of having to take issue with a United States Senator. But in this case I am more than glad to do so. I believe that the Senator is highly misinformed about automotive practices and I disagree with his conclusion that racing is just another form of legalized murder.

The Senator writes that "exhibitions" such as auto racing are "degrading to the human spirit" and he says that the desire to see blood spilled—in his opinion the magnet which attracts millions of Americans to the tracks every year—is "pathetic. It is a lowering of the essential dignity of man. It approaches dangerously close to the raw crowd lust of the Roman 'circuses' where the populace jammed the arenas to watch gladiators battle to the death."

Senator Neuberger charges that auto racing is dangerous to the drivers, dangerous to the spectators and that the whole business has an "adverse psychological impact on youthful Americans" since it "tends to glamorize speed and dare-devilry in automobile operation, an attitude completely at odds with efforts to instill safe-driving principles in the minds of young drivers."

Like the Senator "I do not pose as a psychologist" but his remark that watching an automobile race is "degrading" strikes me as pretty silly. If it is true, an awful lot of Americans are hopelessly degraded because automobile racing is one of the top spectator sports in this country and more people watch and enjoy it than any other "exhibition" we have. As for the "raw crowd lust" which strikes him as perilously close to the old days of the Roman gladiators, he might have been closer to the target if he attacked our own, highly-regarded modern circus, where lion-tamers stalk death at every performance along with

TEDDY ROOSEVELT believed courage a virtue. Racing fosters courage, Tom says.

the aerialists and tightrope-walkers. Are these "degrading" spectacles too? I don't think so.

The Senator implies that the only reason Americans attend auto races is because of blood lust—the desire to see drivers killed or injured. Does the Senator *really* believe that the thousands who attend the Indianapolis 500-mile race, the hundreds of thousands who follow the stock car circuit, the millions who watch these events on TV—does the Senator *really* believe all these people are sadists, attending the races in hopes of seeing a bloody crash?

I've seen more races in my lifetime than the Senator has filibusters. The spectators are average American families, the kind you'll find at baseball games and Fourth of July picnics. High speed and the excitement of watching the best drivers in the fastest cars competing against each other—these are the things that attract the crowds. But believe me, Senator, whenever a driver is killed or seriously injured during a race, it casts a pall over the day that you could cut with a knife. I've seen enough races to know that this is the truth: the vast majority of the spectators do *not* go to the track to see somebody killed or hurt. Auto racing is not a Roman circus, not by a long shot—and anyone who makes such a ridiculous claim is simply showing how little he knows about racing and how seldom, if ever, he has been to a race track.

Sure, American kids are interested in machinery. They're crazy about cars and they like to see them go fast. What's wrong with that? Love of machinery is an American trait that put this country on wheels and served us well in two World Wars. If American kids ever lose their interest in machinery, we might as well give up and go back to the horse-drawn plow—we'll have had it.

I will go along with the Senator when he says that driving a racing car is dangerous. It takes a lot of skill, and a tremendous amount of courage, to maneuver an automobile around a track at 130 miles an hour in competition with other professionals. But is human courage something to be ashamed of? Teddy Roosevelt once said, "In any Republic, courage is a prime necessity for the average citizen if he is to be a good citizen; and he needs physical courage no less than moral courage, the courage that dares as well as the courage that endures."

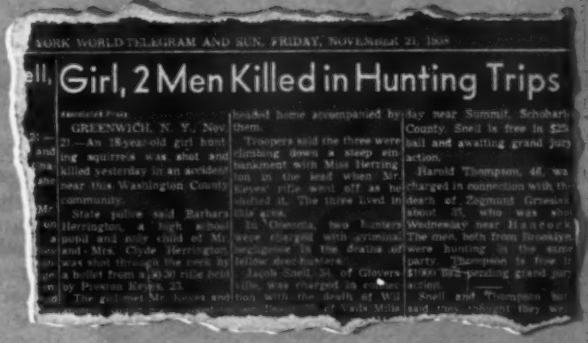
In my opinion there has been a general softening-up in our national attitude about everything, including the virtue of personal courage, which should be a matter of real concern to all of us. I feel that unless an H-bomb blows us off the face of the earth first, there is an excellent chance that under our current thinking we will wind up a nation of panty-waists; without a program, you won't be able to tell the girls from the boys.

As for the risk to spectators, I think the Senator is badly misinformed on this count. Race tracks today are so well-designed and policed that the risk to the spectator in the grandstand is no greater than his chance of getting killed at a hockey game by a flying puck, or at a baseball game by a foul ball. As you politicians like to say, Senator, "Let's look at the record." The injury and death toll among spectators at auto races in the United States in modern times is virtually infinitesimal.

Even granting that automobile racing is one of the "dangerous" sports, it is only one of many and it ranks pretty far down on the list, well below football, boxing and lots of others. If you want to consider a couple of really dangerous sports, how about swimming and boating? More people are drowned in this country every summer than have been killed by automobile racing since the day it started. Shall we abolish swimming and boating? If we do, we had better pass some laws against hunting first, because this form of outdoor sport has killed more people than all the race tracks in the world have managed to do. And getting back to an earlier observation by the Senator, does shooting ducks in Ohio or quail in Georgia "lower the essential dignity" of President Eisenhower? Or "degrade" the thousands of men in the Senator's own state of Oregon who go hunting every season?

All this chit-chat so far is just a matter of personal opinion. I think the Senator has wildly exaggerated the supposedly harmful psychological effects of automobile racing. But when he ridicules the [*Continued on page* 171]

MAURI ROSE, famous race driver now with Chevy, explains to Tom that running a single car against the clock would not be a worthwhile test of the car's speed and performance.



YORK WORLD TELEGRAM AND SUN, FRIDAY, NOVEMBER 21, 1958

Girl, 2 Men Killed in Hunting Trips

Associated Press

GREENWICH, N. Y., Nov. 21.—An 18-year-old girl hunting squirrels was shot and killed yesterday in an accident near this Washington County community.

State police said Barbara Herrington, a high school pupil and only child of Mr. and Mrs. Clyde Herrington was shot through the neck by a bullet from a [illegible] rifle held by Preston Keyes, 23.

The girl met Mr. Keyes and headed home accompanied by them.

Troopers said the three were climbing down a steep embankment with Miss Herrington in the lead when Mr. Keyes' rifle went off as he shifted it. The three lived in this area.

In Oneonta, two hunters were charged with criminal negligence in the deaths of fellow deer-hunters.

Jacob Snell, 34, of Gloversville, was charged in connection with the death of Wil[illegible] of Vails Mills [illegible] day near Summit, Schoharie County. Snell is free in $25[illegible] bail and awaiting grand jury action.

Harold Thompson, 46, was charged in connection with the death of Zygmunt Grzesiak, about 35, who was shot Wednesday near Hancock. The men, both from Brooklyn, were hunting in the same party. Thompson is free in $1000 bail pending grand jury action.

Snell and Thompson [illegible] said they thought they we[illegible]

HUNTING kills more than auto racing, Tom argues, and should be outlawed first if the Senator actually wants to ban all sports that endanger participants.

STOCK CAR races are important in the development of good performance and safety in production cars, McCahill writes. Since manufacturers withdrew from all racing, he says, roadability and suspension in new cars are poorer.

McCAHILL TESTS

THE STUDEBAKER *Lark*

"The Lark performance is great for a small car with a reasonable price tag," says Tom of Studebaker's 25-mpg all-new rig designed for shoppers seeking economy of operation.

By Tom McCahill

BACK in the days when Davy Crockett was a sprout, Paul Whiteman and his Musical Delinquents were batting out a number called The World Is Waiting For The Sunrise. Now, as anyone sharper than a bulldog's nose knows, there haven't been many sunrises in the

WIDE-MOUTH grille and air scoops below parking lights give Lark a slightly Continental appearance.

TEST CAR SPECS

MODEL TESTED: **Studebaker Lark four-door deluxe sedan**
ENGINE: L-head **6** cyls; **169.6** cubic ins; **90** brake hp; **145** ft-lbs max torque; **8.3** to 1 compression ratio. Bore **3** ins; stroke **4** ins; Fuel required: Regular. Standard axle ratio: **3.54.** Wheelbase **108.5** ins; length **175** ins; height **57.5** ins; width **69** ins; front tread **57⅝** ins; rear tread **56 9/16** ins. Weight **2,597** lbs. Gas tank capacity **18** gals. Turning circle diameter **37.5** ft. Tire size **5.90X15.**

PERFORMANCE: **0-30** mph, **4.4** secs; **0-50** mph, **11.5** secs; **0-60** mph, **16.8** secs; **40-60** mph, **12.2** secs. Top speed **95** mph. All times recorded on corrected speedometer.

MODEL TESTED: **Studebaker Lark two-door hardtop**

ENGINE: OHV **V8** cyls; **259.2** cubic ins; **180** brake hp; **280** ft-lbs max torque; **8.8** to 1 compression ratio. Bore **3.56** ins; Stroke **3.25** ins; Fuel required: Regular. Standard axle ratio: **3.31.** Wheelbase **108.5** ins; length **175** ins; height **57.5** ins; width **69** ins; front tread **57⅝** ins; rear tread **56 9/16** ins. Weight **3,042** lbs. Gas tank capacity **18** gals. Turning circle diameter **37.5** ft. Tire size **6.40X15.**

PERFORMANCE: **0-30** mph, **4.1** secs; **0-50** mph, **9.9** secs; **0-60** mph, **12.5** secs; **40-60** mph, **7.1** secs. Top speed **100-plus** mph. All times recorded on corrected speedometer.

LARK four-door sedan has a single ornamental stainless steel strip. Wheelbase is 108.5 in., length 175 in., height 57.5 in.

American automobile business in recent years—although there have been loads of sunsets. Some great cars have gone over the hill and, in the last decade, some new ones have found it particularly tough to brush away the five o'clock shadow. It is generally conceded in the Detroit arenas that if it weren't for a little thing called the Sherman Anti-Trust Act there would only be one manufacturer of automobiles left in America right now.

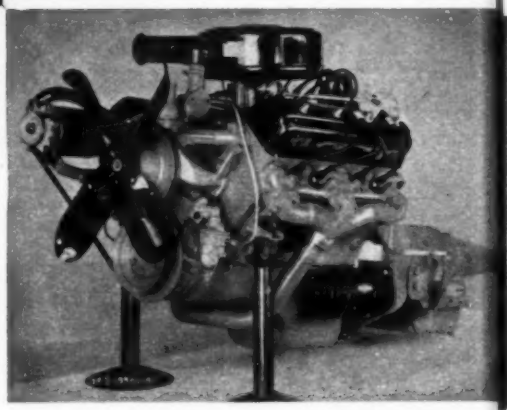
In 1946, with the help of Raymond Loewy, Studebaker introduced the first notch-back sedan ever built in America. Studie was riding high, wide and handsome, looking for new worlds and sales records to conquer. Within 12 months, just about all the other automobile companies carved out of the Studebaker original the current design that is universal in all American cars today. Up until that date every American car looked like the present Volvo or the '46 Ford. The only difference in styling was a pinch here, a bulge there and the way the chrome strips were dealt. Studebaker, since those days, has had some rough times which caused them to merge with Packard, which didn't turn out to be too profitable. Then Curtiss-Wright somehow got the control ball and they became further merged with Mercedes imports—but still the buyers weren't breaking down any salesroom doors.

In America, the birth of a new car is like the birth of a first male heir to the

CORNERING ability of the Lark was satisfactory, reports Tom, although light in the rear end when driving without passengers.

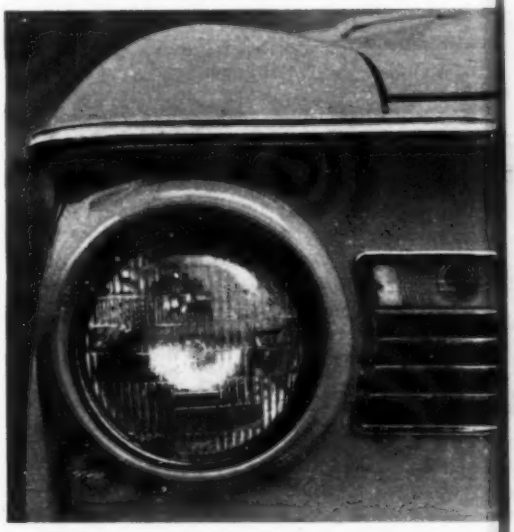
"HEADROOM inside is surprising," Tom says. Dash is simple, has glove compartment in center. Safety padding is standard equipment on the Regal.

STURDY V8 engine puts out 180 hp and gives car top speed in excess of 100 mph. Both six and V8 engines are designed to operate on regular gasoline.



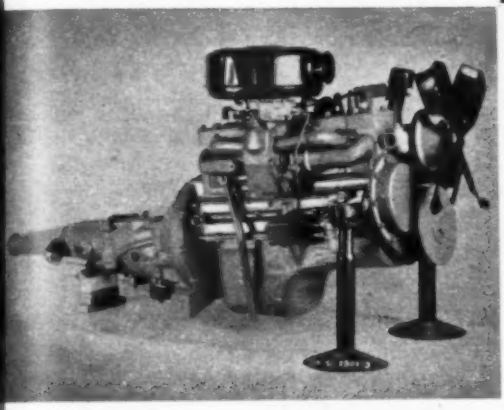
throne in a monarchy—all economists wish it success and so do all the guys in my business. Studebaker introduced a small car a year or two ago called the Scotsman which went over like girlie pictures in a nudist camp. To say Studebaker was not in the healthiest of conditions would be like walking through a morgue and wondering what vitamins might do for the inmates. With the introduction of the new 1959 Lark, everyone from the Wall Street Journal to the Department of Commerce wished Studebaker luck. So did I and many MI readers who have written me. It would appear to be a last-ditch stand, similar to Custer's when he found he had one bullet left—so let's take a look at the bullet.

It would seem that the Lark was meant to be a definite assault on George Romney's successful American Motors camp, makers of the Rambler. Quite wisely, the quarterbacks of the Studebaker team saw that there were no holes to plug in the big-car field so they dropped Packard, figuring there might be room for a smaller, compact car of the Rambler type that has made American Motors gain sales while the monster-peddlers were losing them. It's been a long time since I have seen any new offering receive the initial free press space the Lark has commanded, which might be an indication of just how badly many buyers want a new but smaller car with an American label.



LARK has combination parking-directional lamps, two single headlights, horizontal air scoops.

TOM calls Lark's rear-end styling "a wee bit caricaturish of the '58 Chevy Impala." Oval taillights provide illumination to sides and rear.



L-HEAD SIX is brand-new engine which is smaller, yet improves car performance, Studebaker claims. It's a 90-hp job with top speed of about 95 mph.

To test the Lark we contacted Emmor D. Steele, President of Steele Motors, Inc., of Clifton Heights, Pa. He volunteered to let us have either the new Lark Six or the V8. So, not to be greedy, we took both. The six-cylinder job is the immediate competitor of the Rambler American and the cheapest in the line. Like the American, it features an L-head Six, only in this case it is a 169-cubic-inch blaster as against the American's 195 cubic inches, or roughly 26 cubic inches smaller. Despite this, the Lark gets over the ground well, though not with the wallop of the Rambler. It does 0-60 mph in 16.8 seconds, as compared with the Rambler American's 14.1. This is not a high-performance car but it may prove adequate for those seeking good performance on regular gasoline. Gas mileage should be better than 25 mpg unless you do all of your driving in Times Square.

Appearance-wise, the Lark is slightly continental from the front end and a wee bit caricaturish of the '58 Chevy Impala from the rear. It has an exceedingly small trunk. The upholstery, while nice-looking, is a bit thinnish in the stuffing department. Oddly enough, though both chassis are basically the same, the four-door six-cylinder sedan doesn't handle as well as the hardtop we tested with the more powerful V8. Both cars have a tendency to "plow" on hard turns but in spite of this they do track well. In some hard test corners the car wasn't too bad, though it is definitely light in the rear end when driving without passengers. Another fault of the Six, which had a manual transmission ("stick shift" to you hipsters), was that the pedals are too small, a fault similar to that of the Renault Dauphine. The hoodline is rounded and from the driver's seat looks much like an Indian grave mound (which we trust will not prove symbolic).

The V8 is quite a bit more car but, then, so is the price. The Bare-Faced Six sells for about $90 more than the Rambler American. For an additional hundred bucks you can get the 259-cubic-inch V8 mill. This is a worthwhile investment, in my book, because of the additional power and control. It is still a smaller engine than any other V8 being made in this country except for the Rambler V8. With it, you get 100 mph-plus performance and 0-60 in 12.5 seconds.

This brings up an interesting point. Through a long, strung-out grapevine, various rumors had reached me that the V8 Lark was not only a bomb but practically had the Daytona Beach Speed Trials [*Continued on page* 177]

NO KNEES-FREEZE with this plug-in car blanket that works on car juice or drive-in outlet. For winter sports car drivers and their victims. Bill Hickey, Stillwater, N. Y.

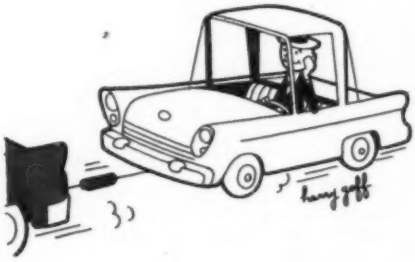
KNOW MORE ABOUT MPG with this clever fuel gauge that tells you how much gas you have in gallons instead of the usual full-empty gauge. Earl J. Heckel, Galesburg, Ill.

INVENTIONS WANTED!

Is there a gadget you think should be invented? If so, send its description to Inventions Wanted Editor, MECHANIX ILLUSTRATED, 67 West 44 St., N.Y. 36, N.Y. Each one printed will be awarded $5.

NO MORE STICKING NECKS OUT with headlights that turn in any direction desired. A boon to night travelers finding their way in suburbia. Barry Biesen, Everett, Wash.

NO MORE BACK-BUSTING with this foot pedal that opens your trunk for you, eliminating purple-faced bend to put down heavy burden. Dean Robertson, San Diego, Calif.



NO MORE BIG JERKS on the tow line if it has a spring in the middle to soak them up. Just happy little jerks seated at the wheel. Douglas Anderson, Detroit Lakes, Minn.

VEST POCKET OFFICE

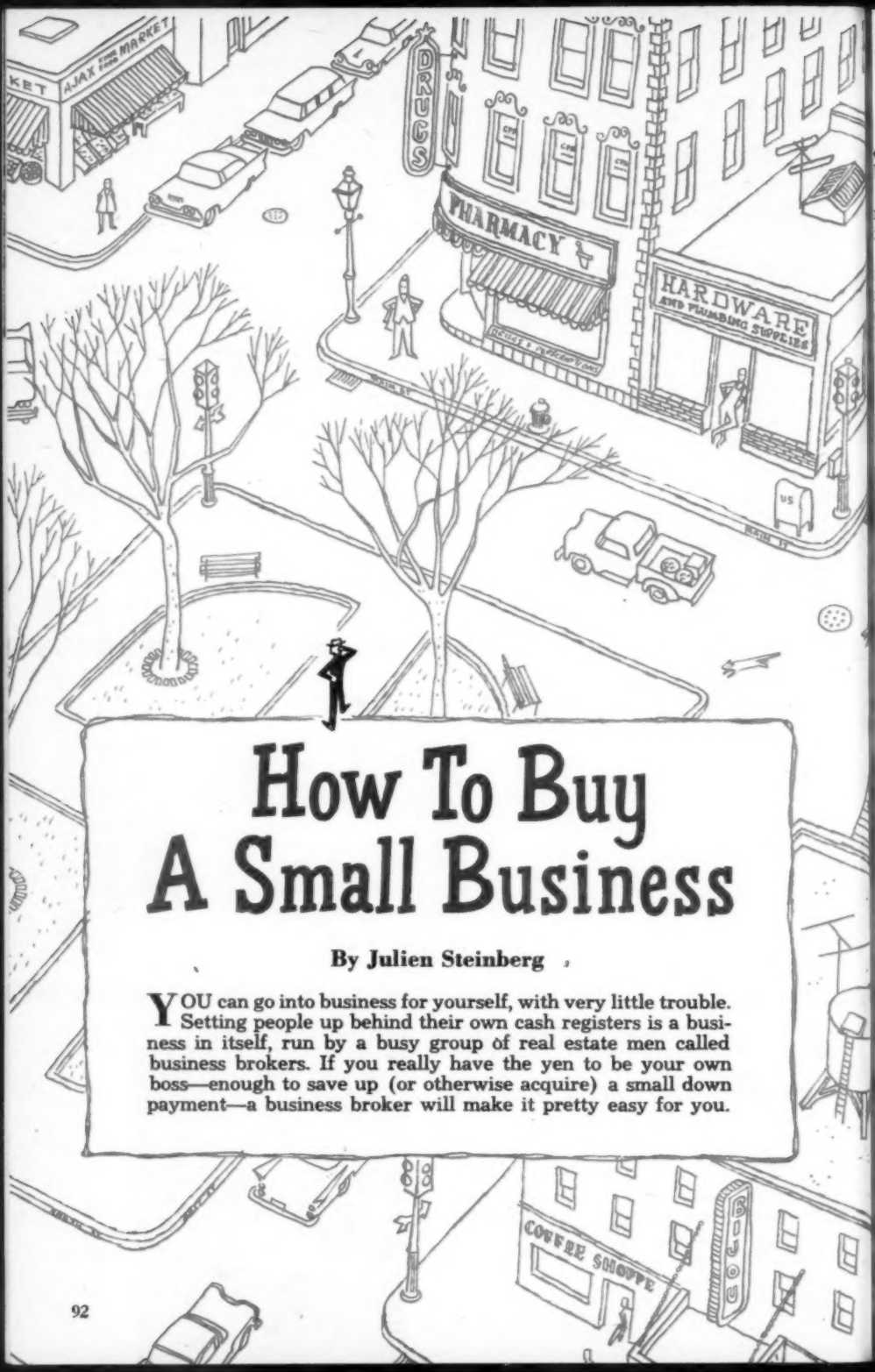
OFFICETTE is an office away from home for busy businessmen or for people who don't have an office. Officette consists of a bank of 108 boxes. Subscribers pay a monthly fee and are provided with a 24-hour service which forwards, privately, their phone and/or written messages. Mail to a subscriber is sent to a regular building address rather than a post office box number. Phone messages are taken by operators who answer "Mr. Smith's office." Officette, Inc., New York, N. Y., has two units in operation—one in Penn Station and one in Grand Central. •

KEEP OUT THE SUN

AUTO shades that give privacy—you can see out but passers-by can't see in—are available for most late model cars. The shades also screen the sun but allow breezes to circulate. The waterproof shades are made of Kaiser Aluminum Shade Screen and are easily installed with springs that snap in or out. Wilson Auto Products, 16 West Utica Street, Buffalo 9, N. Y., makes them. •

JELLY MARTINI

THAT olive isn't resting in a pool of glop. It is a Martini which contains Carbopol, a new thickening powder concocted by B. F. Goodrich Chemical Co. Carbopol is a soluble polymer said to be the most versatile agent ever discovered for thickening, suspending, dispersing and emulsifying. It improves flow and eliminates drying in a host of chemical products. •



How To Buy A Small Business

By Julien Steinberg

YOU can go into business for yourself, with very little trouble. Setting people up behind their own cash registers is a business in itself, run by a busy group of real estate men called business brokers. If you really have the yen to be your own boss—enough to save up (or otherwise acquire) a small down payment—a business broker will make it pretty easy for you.

It comes as a surprise to many wage-earners that profitable businesses are bought and sold.

"But why," you may well ask, "will a man who owns a good business want to sell it to me?"

Well, he may be getting old and be ready to head for Florida full-time. Or maybe he's gone to his reward and his heirs don't want the business. Or maybe Uncle Ed has offered him a good job in the plant out in Pittsburgh. Get this straight—just because it's up for sale doesn't mean a store is a lemon. Most businesses—I mean good, sound money-makers—are bought and sold many times.

So let's take a look at the businesses listed by brokers in your local paper. You'll be surprised to know that many of them require no more than a $1,000 to $3,000 down payment; the rest of the purchase can be paid in installments, out of the money the business brings in. Here are typical setups in the $3,000 to $12,000 (total cost) range:

Eateries. Hot opportunities for the small cash man. Many a pizzeria now languishing will do an H. Johnson business under new management featuring cleanliness, good food and nice manners.

Roadside stands. Who needs to be told these can make money? Custard, hot dog, fried clam, souvenir and local produce stands along our highways prove the point.

Routes. Men who own paper routes are making a living by working a few hours in the morning. Other big pay lines are baked goods, meat, groceries. Franchises to deliver the goods of a certain company are often bought and sold.

TV and fixit shops. Honest, competent TV repairmen are worth money to themselves and their customers. Fixit shops of all kinds, catering to homes and businesses, mean real dough in this gadgety era.

Shops on wheels. A recent MI story (How To Roll Your Own Business, Sept. '58) pointed out the opportunities involved in taking your wares to the customer. You can buy used outfits of that sort, too. And fun rides on truck beds are good buys. You sell tickets direct to the kids—or a businessman pays you by the day to give away rides in front of his store. Or PTAs and other picnickers let you in for a cut of your take. Fun rides are a good buy for the shoestringer.

Know-how businesses. Picture-framers, glaziers, florists, hairdressers, barbers, cobblers are all in sound little businesses that can be parlayed into big ones. Where you get the know-how is up to you; there are schools, correspondence courses and public libraries loaded with books on special crafts and trades.

Concessions. The soda fountain in the drug store is often a separate business. The druggist takes a cut of the fountainman's profit or rents the space. Often the fountainman has the right to sell the concession. Another concession is the goldfish corner in the five-and-ten; store managers don't want the trouble of caring for the stock. Watch repairmen and jewelers in department stores are often concessionaires.

That should give you an idea of what your local business broker can steer you to. Suppose you contact him; look him up in the phone book, your newspaper or ask a local bank or Chamber of Commerce. Then you go see him; usually you'll find him in a smallish office because he doesn't need much of a layout.

At first the broker may seem a bit standoffish. That's because he's plagued by nuts who come in to yak about businesses they'll never buy. But once he senses that you're sincere, and smells a nice, sincere commission in the wind, he'll begin to give you the local picture.

You don't obligate yourself in any way by visiting him. But before you go to see any business he sends you to, he'll have you sign a paper stating that you learned of the opportunity through him. Read everything before signing, of course.

Brokers are mostly honest because they're licensed and licenses can be revoked. But they are out to complete a sale, so go slow. Be sure anything you get into is what you want.

When you go to see the business, there are certain courtesies to be observed.

When you walk in you wait patiently while the man deals with customers. When he's free—and alone with you—you state your mission. Few storekeepers want it known that a business is changing hands.

You ask him pertinent questions—how much business he handles, what he pays out, where he buys, anything you want to know. When you leave, if you're still in-

[*Continued on page* 189]

HUNTING AND FISHING

ANSWERS TO YOUR QUESTIONS

By Wynn Davis

OUR OWN outdoor expert takes on an indoor job and tackles the latest batch of letters from MI readers seeking advice.

● *My wife, son and I are going to visit Florida for the first time. We are all ardent bass fishermen. Where will we find the best bass fishing in Florida? Are there good housekeeping cabins, boats and motors there? Is it very expensive?*

Bill Rowland
Chicago, Ill.

Florida offers some of the best largemouth bass fishing in the world. I like the St. Johns River between Big Lake George and Little Lake George, south of Jacksonville. You'll find excellent camps with clean cabins, boats and motors. The prices are quite reasonable, but with seasonable variations. Better write Crescent City, Fla. early for a list of camps and rates. Then make firm reservations.

● *We had a big argument at our gun club last night. A lot of us who hunt wild turkeys here in Pennsylvania say you must use a 12-gauge shotgun with No. 2 shot. I think this is too much artillery. What do you think?*

Carl Grosskopf
Pittsburgh, Pa.

I use a 12-gauge shotgun, No. 6 shot magnum load—and I get mine. This magnum load gives you many times the number of pellets found in the No. 2 shot load and a better, tighter pattern. But don't overlook the rifle, especially the .22 Hornet, for those long shots.

● *I have used a 14-ft. outboard boat and seven and a half-horsepower motor for several years for local fishing. Now I want to vacation at a Gulf of Mexico resort and fish offshore. Is it possible to buy a large aluminum outboard that would be safe in the Gulf or must I go to an inboard? My friends say aluminum boats are too light for big water fishing. What do you recommend? What is cost with suitable trailer?*

D. W. Riley
St. Louis, Mo.

If you are experienced with outboards, I'd get a larger one or you'll have to learn all over again. A 16-ft. aluminum boat with a beam of not less than 54 inches up to 65 inches, made to OBC standards, with a 25-horsepower motor will give you plenty of safe fishing in the Gulf or ocean in fair weather, if you know how to handle big waves, tides and winds. If you don't you'd better stick close to shore while learning. And you'd do well to have two motors, just in case one fails you. This outfit with a suitable trailer should not cost more than the price of a good, two-year-old station wagon. Better include extra gas tanks, too.

● *My friends and I are tired of traveling long distances to famous trout streams only to find the crowds as bad as those back home and the streams stocked with seven-inch fish, instead of the tackle-busters we'd dreamed about catching. So we're going to take up bass fishing. Where can we find some wild and isolated smallmouth bass water that offers excellent fishing during June and July? Is Maine all it's cracked up to be? How are the cabins and meals there? The prices?*

Robert Morris
New York, N. Y.

Maine is tops for smallmouth bass fishing. Big Lake and Spednic Lake over in the Princeton [Continued on page 168]

NEW RENAULT FLORIDE

ONE of the stars of the recent Paris auto show was the Renault Floride, a new model from the makers of the famous Dauphine. With racy, Ghia-styled lines, the Floride will be available in convertible, hardtop and cabriolet with removable hardtop. The chassis is reported to be stock Dauphine. The Floride is expected to be on sale in the U. S. in June. The price will be $2,300. •

SLIDE-RULE WATCH

NEWEST gadget in do-everything watches is the Chronomat, a combination wrist watch, stop watch, timer and circular slide rule. With Swiss-made precision, the Chronomat gives you the time of day, let's you time anything from an auto race to film souping, and provides a calculator that adds, multiplies, subtracts, figures percentages, ratios and even rates of money exchange. It's scarcely larger than a 50-cent piece but there's hardly a mathematical problem this gizmo can't handle—except how many Brigitte Bardots can stand on the head of a pin. A dream of a gift, the Chronomat is sold by the Wakmann Watch Co. of New York City. The price? Only (gulp!) $110. •

IT'S NEW!

ENGLISHMAN'S DOME is a glass castle: architect Hugh Pope and wife relax under glass. Modest Crystal Palace went up in two weeks for cost of $1,400.

CITROEN station wagon, one of the French firm's new line of utility autos, holds lots of cargo for a smallish vehicle. The rear seats face inwards, fold into floor very cleverly. Below: true French chic.

GERMAN UMIAK, really a planked boat with a cosy canvas cover and ten snug hatches for the paddlers, carries happy Hamburgers up the Elbe.

BRITISH CABIN CRUISER, built for export to the world's $14,000-up boat markets, has twin Diesels, 24-hour range, has passed tough sea trials.

MICKEY MOUSE HELMET worn by deckman aboard supercarrier USS Ranger contains radio on which he receives orders from ship's tower.

LIE-DOWN BIKE, a Swedish invention, is supposedly great for lazy cyclists. David Hallin, bike's inventor, demonstrates. Note luggage rack.

ROLLING OFFICE for big shots has typewriter in dashboard. Girl Friday sits up front in Simca Presidence, designed to fit the needs of execs.

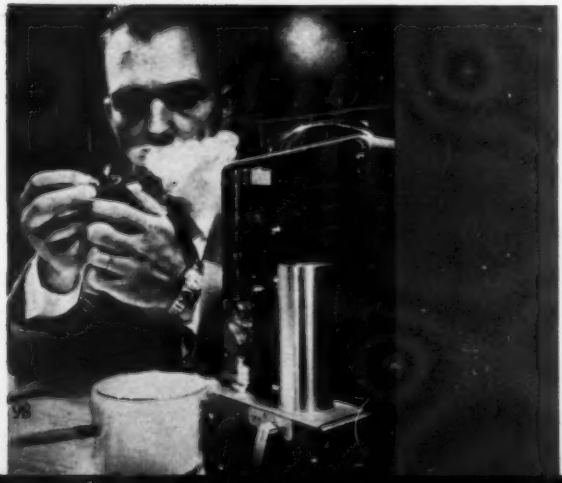
CONTINUED . . .

IT'S NEW!

TRI-OPTIC LENSES for the near-blind give high magnification for near and far vision, normal peripheral vision for localization of objects.

PORTABLE TV set by GE, battery-powered and transistorized, has full selectivity. Cost of transistors keeps it off market for the present.

STOL OTTER, experimental DeHavilland plane, has high lift flaps, thick aura of secrecy. Canadian outfit is testing it on a runway tow rig.



FIRE DETECTION device developed by Minneapolis-Honeywell reacts to smoke, fire, combustible vapor. Ultraviolet sensitivity does it.

SKID-LID WIG made of tough nylon does duty as a crash helmet for ultra-feminine motor-cyclists or scooter passengers. The inventor is Raymond, a London hairdresser.

TIRED FEET do less damage to floors in lumberjacks' homes than do naked hobnails. Logging superintendent G. W. Nutter of Mollala, Ore., models portable floor protectors.

FINGER SAVER and nail-holder from Belgium is made of rubber, holds six sizes of nails, is especially useful for driving the smaller sizes. Gizmo pulls out for last tap.

ROCK'S READY to roll in this handsome Hun sportster, an eight-cylinder Horch that Hitler gave to Eva Braun. Actor Hudson uses it in a movie. It cost Adolf a cool $11,000.

WHAT IS YOUR ATOMIC IQ?

By J. Robert Connor

GREEK philosophers some 2,000 years ago are believed to be the first people to theorize that there were tiny and invisible particles in all matter. They named these particles atoms. To give you an idea of the smallness of these particles, it is said that if all the people of the world were as tiny as atoms, we would all be able to stand on the head of a pin! Since the atom seems to offer us a bright future, barring war, we should know something about it. This quiz is designed to test your atomic acumen. How do you rate?

True or False *(underline one)*

1. The first atomic-powered merchant ship to be built by the United States will cost an estimated $39,000,000. The name designated for this vessel by President Eisenhower is the *N.S. Savannah*. True. False.

2. United States scientists were the first to discover atomic energy. True. False.

3. The A-bomb derives its tremendous energy from atomic fusion. True. False.

4. A reactor is an atomic furnace. True. False.

5. Uranium, the source of nuclear fuel, is far more radioactive than radium. True. False.

6. Pitchblende is an ore containing both radium and uranium. True. False.

7. Isotopes are made up of almost identical atoms that behave chemically the same but have slight differences in their atomic weight. True. False.

8. The latest use for atomic energy, according to the Atomic Energy Commission, is the explosion of a nuclear bomb underground which is expected to open a vast new field in mining and oil techniques. True. False.

9. The inner core of the atom is called the nucleus. True. False.

10. Food irradiated by atomic particles is now being eaten by the United States Army. True. False.

Multiple Choice *(underline one)*

11. The name of the United States Navy's first atomic-powered submarine is: *Seawolf; Nautilus; Skipjack.*

12. Master slave manipulators are: mechanical hands used to handle radioactive materials; mechanical hands used to dig up uranium ore; device used to measure atomic energy.

13. The first commercial atomic power station in the United States is located in: Shippingport, Pa.; Los Alamos, N. M.; Oak Ridge, Tenn.

14. A Geiger counter is an instrument used to: measure radioactive elements; count atomic particles; detect the presence of radioactivity.

15. The nucleus of an atom consists of: electrons and neutrons; neutrons and protons; electrons and ions.

16. A critical mass is: a radioactive pile; amount of nuclear fuel needed to sustain chain reaction; massing of protons.

17. The word "hot" means that a substance is: burning; undergoing nuclear bombardment; highly radioactive.

18. The best shield laboratory workers can use to protect themselves from radiation is: iron; steel; lead.

19. A roentgen is: a unit of radioactive dose; critical mass; radioisotope.

20. The chairman of the Atomic Energy Commission is: John A. McCone; Thomas Murphy; Lewis L. Strauss.

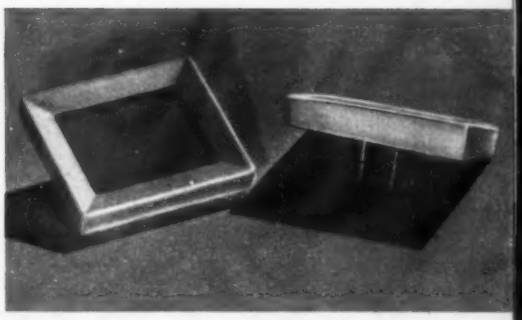
21. The most important material used in atomic energy operations is: U-234; U-238; U-235.

22. The man who proved by experiments that the atoms of various elements are not alike and that each has its characteristic weight was: Albert Einstein; John Dalton; Isaac Newton.

Answers on page 186

MECHANIX ILLUSTRATED BRIGHT IDEA AWARD

Safety Light



PLUG-IN PANELS are the first electroluminescent lights to be sold for home use. "Flat bulbs" burn a full year for one penny.

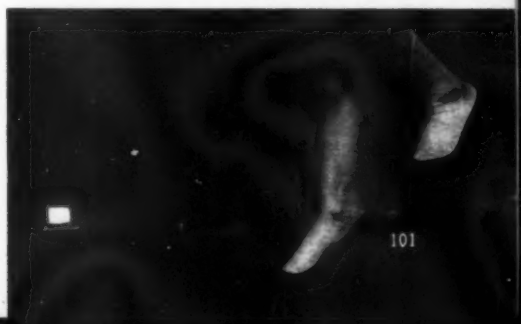
HALF A DUPLEX outlet is all the room the Rayescent light requires; it can be used in nurseries, bedrooms, hospitals, hallways.

ONE safety feature of the new Westinghouse Safety Light is that it provides day-and-night illumination in any dark and dangerous corner that happens to have a wall outlet. Another is that the light is always there—as the lamp burns practically forever and almost for nothing; you just buy it, plug it in and forget it. And it's flat against the wall. The lamp is really an electroluminescent cell—a phosphor coating on glass, treated to conduct electricity. Westinghouse calls it a "Rayescent lamp." Retail price: about $1. •

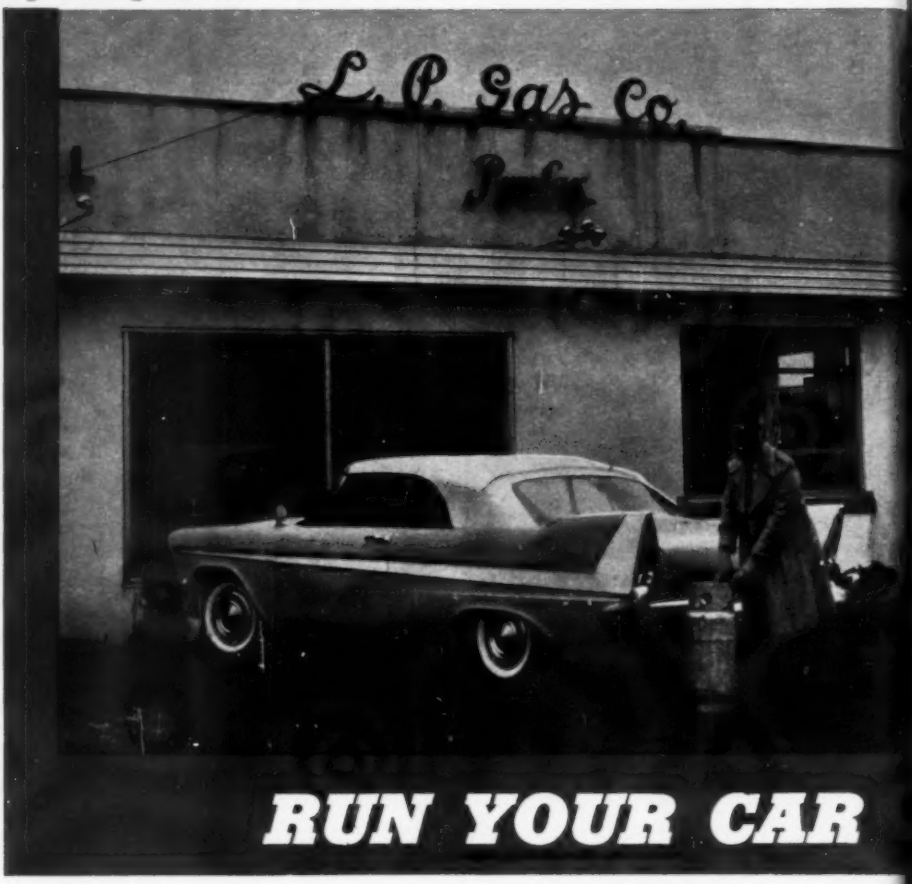
WIN $50

MI will award $50 each month to the first person who tells us of a new and useful gadget that is patented and in production. Manufacturers are also eligible for this award. Pictures and a description should be sent to Bright Ideas Editor, Mechanix Illustrated, 67 West 44th Street, New York 36, N. Y.

SURE FOOTING is well worth the negligible cost of this plug-it-in-and-forget-it light.



By Harry Kursh



RUN YOUR CAR

SHOULD you convert your car to run on ordinary cooking gas to cut costs and save money? The answer isn't a simple one. It depends on how much driving you do and how often you trade in your car. Here are the facts for your consideration:

Cooking gas is basically a mixture of butane and propane which is extracted from crude oil or natural gas. Bottled in the familiar steel tanks under pressure, the gas liquefies. That's how it gets its correct name, liquid petroleum, or LP gas. When released from the tank, LP gas returns to its vaporous form, ready for burning in a heater, kitchen range or internal combustion engine.

It is estimated that more than 1,100,000 motor vehicles—passenger cars, buses, trucks and farm tractors—have already been converted to LP gas and individual owners are converting at the rate of 10,000 a year.

To get the answers for MECHANIX ILLUSTRATED on what it's like to drive on LP gas and how it stacks up in actual performance, I went to one of the nation's top specialists in the field, Dave Reber, a carburetion engineer who is also the carburetion editor and consultant for the trade's leading publication LP-Gas Magazine.

I made a 450-mile test run with Dave in his converted '56 Chevrolet, from New York City to Rochester, N. Y., via

LP GAS TANK in trunk holds equivalent of about eight gallons of regular gas. left. That's author Kursh taking notes. The toggle switch on the dash below is for shifting from the LP gas to regular gas.

SERVICE STATIONS that dispense LP gas, like one at left, are available in most parts of country. The price varies from 11-28 cents per gallon.

ON COOKING GAS?

the New York State Thruway.

We began by looking into Dave's trunk where he has installed his LP gas tank. The $35-tank weighs 34 lbs. empty, 74 lbs. filled and holds the equivalent of eight gallons of gas. It is removed for refilling in seconds by releasing a Wiggins coupling. A meter indicates how much LP gas is in the tank.

To feed LP gas from the tank to the engine, Dave installed a line of sturdy tubing, made of spring-steel wire, neoprene and cotton cord, which costs about $1.60 per foot.

Next step is to connect this LP gas feed line to an LP gas regulator. The regulator converts the LP gas from liquid to vapor, reduces the pressure and feeds LP gas at a uniform rate to the engine. The regulator costs about $70.

One end of the regulator also has an opening for a connection to the car's cooling system to aid in the vaporization of the LP gas as it passes through the regulator. But before the gas enters the regulator it has to go through a special LP gas filter ($4). A $14-solenoid automatically shuts off the flow of LP gas whenever the ignition is turned off.

The LP gas flows directly into a dual-fuel carburetor adapter which makes it possible to feed either LP gas or conventional gasoline into the engine. Dave's adapter [*Continued on page* 180]

Yakkity Yak Yak Yak Yak Yak Yakkity Yak Yak

TALK ABOUT TELEPHONES

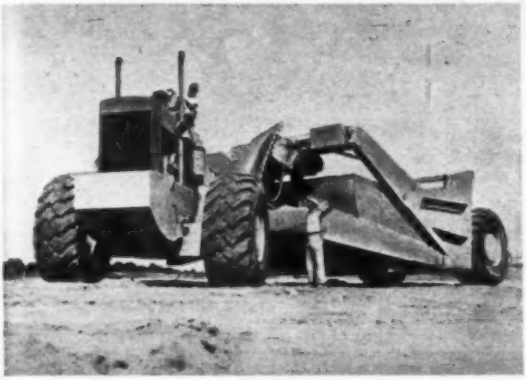
VIRGIN ISLANDS (the British ones) have only one phone—presumably a busy one.

THERE'S a lot of talk going around on the world's 110,000,000 phones but not much about them because these familiar little old-fashioned devices are so old-fashioned and familiar. But the homely telephone, so indispensable to high school kids, movie gangsters, bookies, airline offices and Indians on the reservation who want a taxi to town, can yield strange new insights into the character of places we think we know a [*Continued on page* 187]

TALKINGEST telephone users in the world are Alaskans—630 annual calls per person.

WASHINGTON has 65 phones for every 100 citizens. Stockholm ranks next with 56.

WORLD'S LARGEST SCRAPER

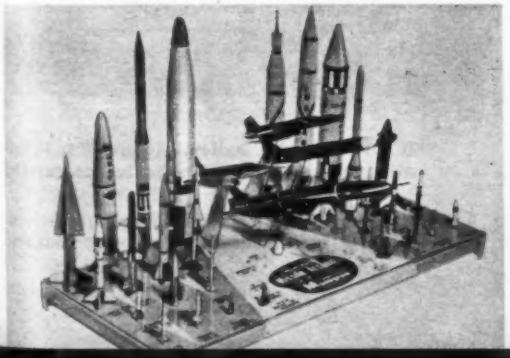


WORLD'S largest and most powerful earth-moving scraper is this 70-ton capacity machine made by R. G. LeTourneau, Inc., Texas. The $100,000 dirt-eater can move 50 to 60 cu. yds. of earth at a time. Electricity generated by a 600-hp Cummins diesel supplies the power to run the 130,000-lb. machine. The goliath is about 62 ft. long, 14 ft. wide and has 7.3 ft.-tall tires. It has a 325-gallon fuel capacity, can travel 20 mph. •

CRAZY CLOCK

IF you can't figure out the time on this crazy clock, don't worry about it. You're not ready for the giggle factory —yet. Actually, the darn thing runs backwards! And it reads backwards! This bit of lunacy is an electric job that operates on 110-120 volts. It's designed for den, bar, club or bathroom, if you prefer. It might even make Granny swear off the stuff. The Crazy Backward Clock is $7.98 and is available from Johnson Smith Co., Detroit, Mich. Oh, yes. It's about 18 minutes before two, if you've been scratching your head. •

MODEL MISSILES



UNCLE SAM'S missile arsenal is contained in this plastic kit made by Monogram Models, Inc., of Chicago. The display boasts 31 molded plastic missile models, covering the full range of current U. S. armament. The 3/32-in. scale models are all clearly labeled and you get a 32-page Know Your Missiles booklet with $2.98 kit. •

Portland's Zoo Railway

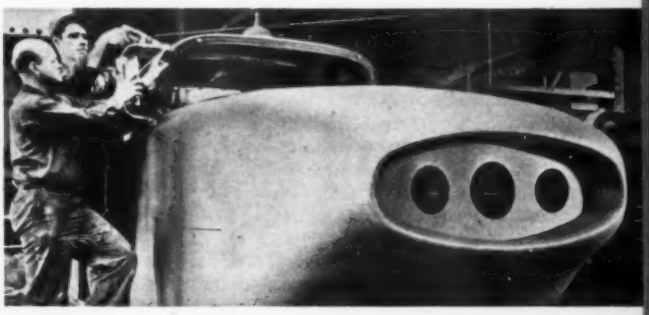
HAPPY tots and smiling adults ride around the new $3,859,000 Portland, Ore., zoo on America's latest railway—the Portland Zoo Railroad Co. The rocket-styled, Diesel-powered Zooliner hauls three gleaming Skydome coaches and a luxurious club car which tote 99 adults or 132 kids. The pike is headed by famed Pacific Northwest author and historian, Stewart H. Holbrook, Chairman of the Board, and John H. Jones, President. All aboard! •

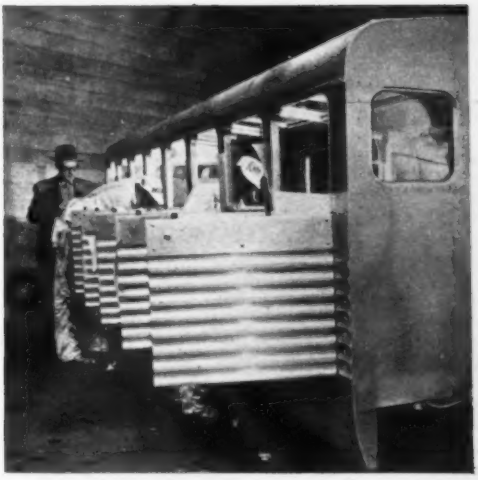
ZOOLINER hits half-mile-long pike. Line will increase track mileage in the future.

TOTS and big folks are lugged over right of way by 13,000-lb. Diesel locomotive.

ENGINEER'S dial maze. Dead man's switch is on the floor. Brake valve, left. Throttle, right.

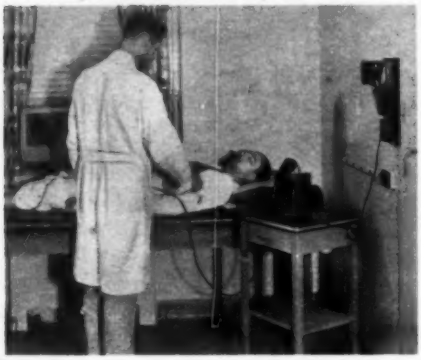
ALCOA Aluminum body gets finishing touches from Hirschberger Sheet Metal Co. workmen.





COACHES have compartment doors; seats accommodate three adults or four kids. Railroad is division of Portland Zoological Society.

HEART DIAGNOSIS BY PHONE



YOUR heart may soon be diagnosed for ailments by telephone. A new five-lb. transistorized unit which transmits heart sounds and electrocardiograph signals via telephone has been developed by the University of Kansas Medical Center. The device is designed to solve many of the problems of phone consultations between heart specialists. The patient, with transmitter attached, sits or reclines next to a phone mouthpiece. At the receiving end, a second unit transmits the signal to another electrocardiograph machine for consultant's reading. •

THREE-WHEEL SURREY

LAMBRETTA Surrey with a Ghia-made body is the latest vehicle from the Italian scooter maker. The three-wheel vehicle seats two passengers comfortably on a wide rear seat. The Surrey has a one-cylinder, 150cc two-cycle engine with a top speed of 45 mph. It travels about 75 miles on a gallon of gas. The Surrey will retail in the U. S. for under $1,300 and is designed for resorts, golf clubs, amusement areas and other places where economical short-haul transportation is desired. •

TABLE-TOP ORGAN

JUNIOR can play maestro at the organ—a little reed pipe job about two ft. long that operates via electricity and boasts 27 black and white keys which play sharps and flats, and over two full chromatic octaves with true, full-bodied organ tone. The $20 table-top instrument is made by Emenee Industries, Inc., New York, N. Y. It is made of break-resistant Styron plastic and comes complete with music book and electric cord. It is said to help Junior develop musically. •

HE MAKES DOUGH FROM DOUGH

MONEY MAKING IDEA

By Roger Fuller

HAPPY children with a gang of Play-Doh chums. We'll not deceive you—their Daddy made them.

TESTING raw materials of Play-Doh is continual: perfect safety is a big Play-Doh selling point.

PLAY-DOH is that mildly-scented modeling stuff your kid works into demented shapes, then shouts "Daddy! Look!" It comes in colors and your little Leonardo can blend the putty-like dough to his heart's content. The guy who makes the stuff has kids, too, and they can play with platinum yo-yos now, if Daddy wants them to. Play-Doh was originally a wallpaper cleaner young Joe McVicker inherited, with built-in headaches. Who wanted a wallpaper cleaner any more? "Aah, paint over it" was the popular cry of the post-war PTA set. The Cincinnati business was flat on its back and so was Joe, after an operation, when he got the Play-Doh idea from his little girl, who was pudging the dough by Daddy's bedside. A field-test in a nursery school yielded suggestions that Joe color the putty and have it tested so nothing drastic would happen to any young customer who might suddenly eat the "rightnowsterous" he had modeled. Joe went ahead, and any proud parent of a very young sculptor knows the rest. Joe feels much better than he did and his once moribund business is grossing about $3,000,000 per annum. Inspirational? Back to your basements, dreamers! You may yet find a use for chewed bubblegum! •

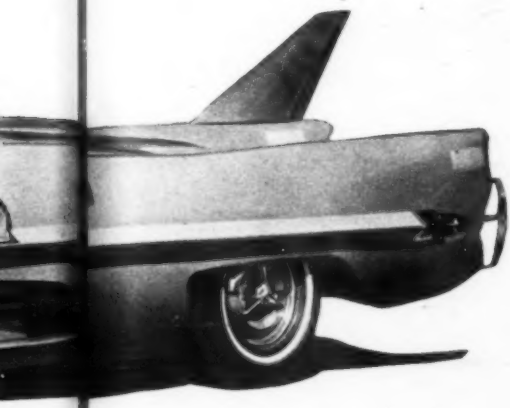
MEET THE

BESASIE X-2

ZERO to 60 mph in 6.5 seconds is fast enough to scorch the wrinkles on an asbestos-lined bald dome but that's what the Besasie X-2 can do, claims its designer-builder, Raymond Besasie. The Milwaukee, Wis., inventor spent an estimated 5,200 hours and close to $20,000 building his dream car which features running lights on its sides. The center wheel-steered auto has no doors. You hop in and out via recessed step plates on either side of what would be doors on a conventional car. Power is provided by a Cadillac engine which, with a Besasie-made turbocharger, puts out over 400 hp. Two radiators in the rear-engined vehicle dispel heat with dual

STRIKING X-2 was conceived and built by Raymond Besasie, with glasses, and sons (left to right) Joseph, Raymond, Jr.

BESASIE turbocharger and Cadillac engine give X-2 over 400 hp, 135 mph top speed.



UNIQUE center wheel-steered car combines safety and excellent ride, builder claims.

fans that draw in air from scoops on each side of the body. The air is then expelled via a large grille at the rear of the car.

Besasie says, "I'm now getting from 20 to 22 mpg on high octane fuel while cruising at 62 mph." Since the inventor expects even better gas mileage, this might very well be the "car of the future." •

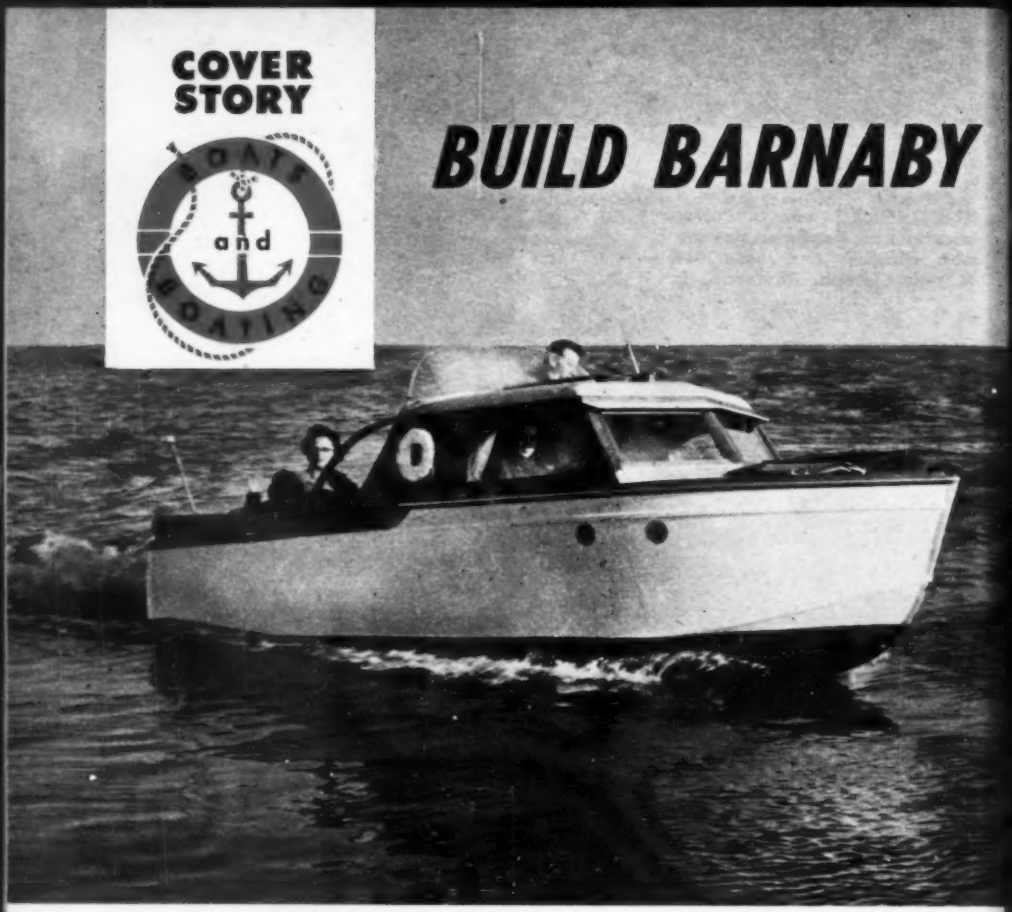
FUNCTIONAL fin stabilizes car at high speed. The grille helps to exhaust engine heat.

STEP-PLATE button opens removable top which is mounted on rails, closed by dash switch.

TAILLIGHT guards shield glass. Fin base flap is pulled down by finger, hides the gas cap.

COVER STORY

BUILD BARNABY



You can actually build this 16-foot outboard-powered cabin cruiser for less than $300!

By Hank Clark

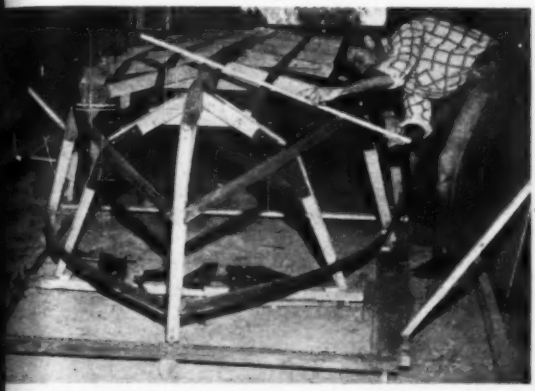
THIS is it! For less than $300—$233 to be exact—I built this 16-foot cabin cruiser. Framing lumber for the hull cost $43; plywood planking $80; miscellaneous wood, screws and paint $64; control hardware $46; total cost for the hull, $233. Roomy but trailable; it's small enough to keep our lot uncluttered. It carries a slew of camping gear, plus my wife, three kids—and a dog! Yet it planes easily, just like a runabout. Good stability, sturdy oak framing,

PRESSURE is exerted with knee to bend the chines in for fastening to the stem.

⅜-inch plywood hull and mahogany trim for that "cruiser" look. The cabin sleeps two adults plus a child.

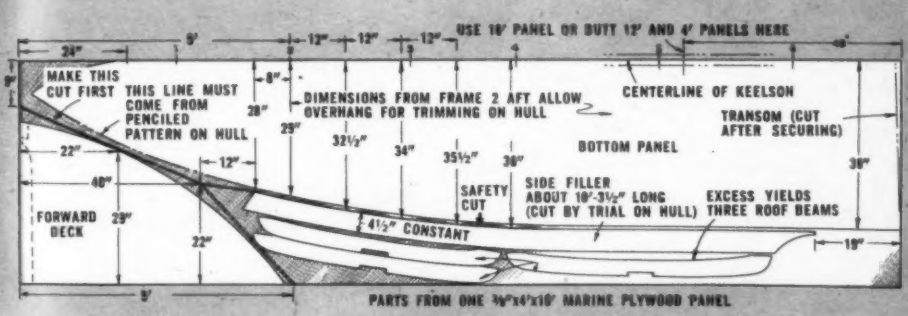
The wheel and controls in the cabin are for use in wet weather. They are coupled to the helm in the open cockpit for stand-up or sit-down steering. Portholes for Junior to watch the splash, a memory every boy should have—wide gunwales for walking—grab rails on the roof—windows that open for ventilation—an upper windshield to keep the wind off the skipper—fuel tanks under seats, which are hinged—seat back that lowers, for motor attention—a self-bailing water well to keep out following seas—a high freeboard to keep out spray. *Barnaby's* got 'em all!

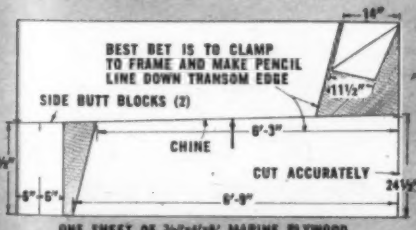
I built her in three months' "spare" time, from Labor Day to Christmas.



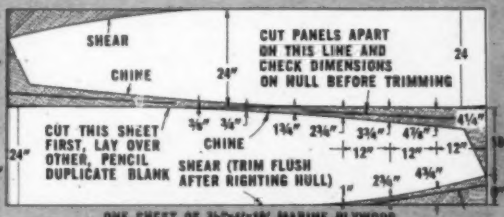
CHECK bevel of chines and keelson with fairing stick so planking will lie flush.

STRINGERS go into notches at bottom of transom frame; glue and screws hold them.





ONE SHEET OF ⅜"x4'x8' MARINE PLYWOOD YIELDS REAR HALF OF EACH SIDE

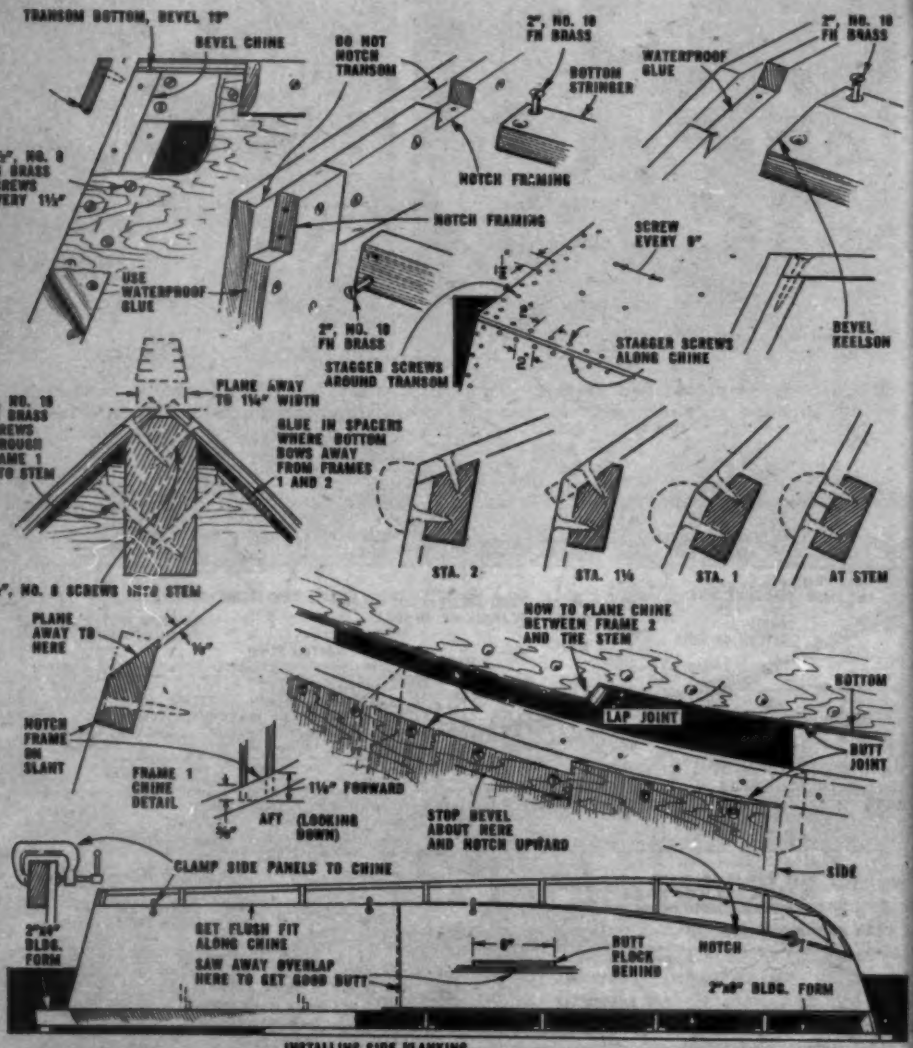


ONE SHEET OF ⅜"x4'x10' MARINE PLYWOOD YIELDS FORWARD HALF OF EACH SIDE

PLANKING FOR THE SIDES, BOTTOM AND DECK IS CUT FROM PLYWOOD PANELS.

Barnaby (formerly *Carolinda*) is a project for workshoppers with a *few* power tools and a penchant to get into something big like a boat. I don't need to take a poll to know how many of you guys have been confounded by construction curves, bludgeoned by blueprints, outwitted by offsets, lashed by loft lines and intimidated by terminology that was designed more to confine you to lacquering loveseats than to launch you on boatbuilding. (But take heart, Buster, because this comes to you through the courtesy of MI's leading how-to artist who admits a picture is worth a thousand words but a good how-to drawing is worth two thousand!—Ed.)

Don't be afraid of this boat. It looks like work, and it is, but you will be amazed at how quickly it progresses.



FASTENING AT STEM AND TRANSOM, BEVELING OF CHINE AND FITTING OF SIDES.

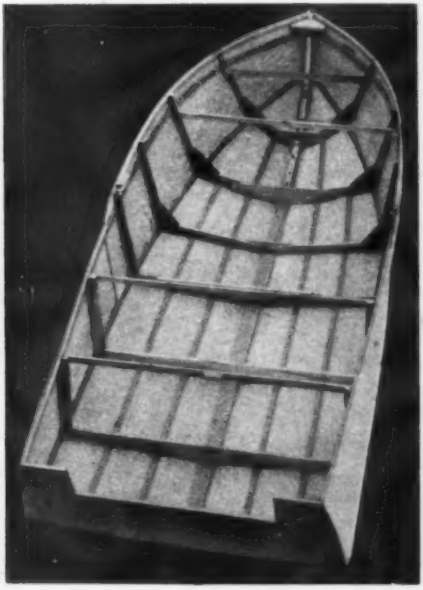
OUTLINING side panel against chine and sheer of hull frame for accurate cutting.

SIDE PANEL is clamped on to bore screw pilot holes; it's then removed for gluing.

My advice for starting is this. Study the six frame, or rib, drawings on page 120. Then order the lumber for them cut to the lengths specified and assemble them into frames with Weldwood glue, screws and bolts. When you have completed the six simple rib frames, you are looking at your actual boat coming to life.

To work from these pages, lay out the frame lines full-size on large Kraft paper. Bisect the paper with a center line. Draw each outline in a different color crayon to avoid confusion. Starting at the bottom of the sheet, lay each frame a few inches above the last. The dimensions will keep you out of trouble, plus the fact that all frames are cut on straight lines. This is a planing hull with shallow V bottom. The flat bottom makes it safe with any load and certainly makes it extremely easy to secure the bottom plywood panels. It may pound going over small chops. Adding a slight bow to each frame bottom member will soften whatever pound might

AFT END of bottom planking is fastened after forward end is secure. Crosspieces stay in until hull is turned over, right.



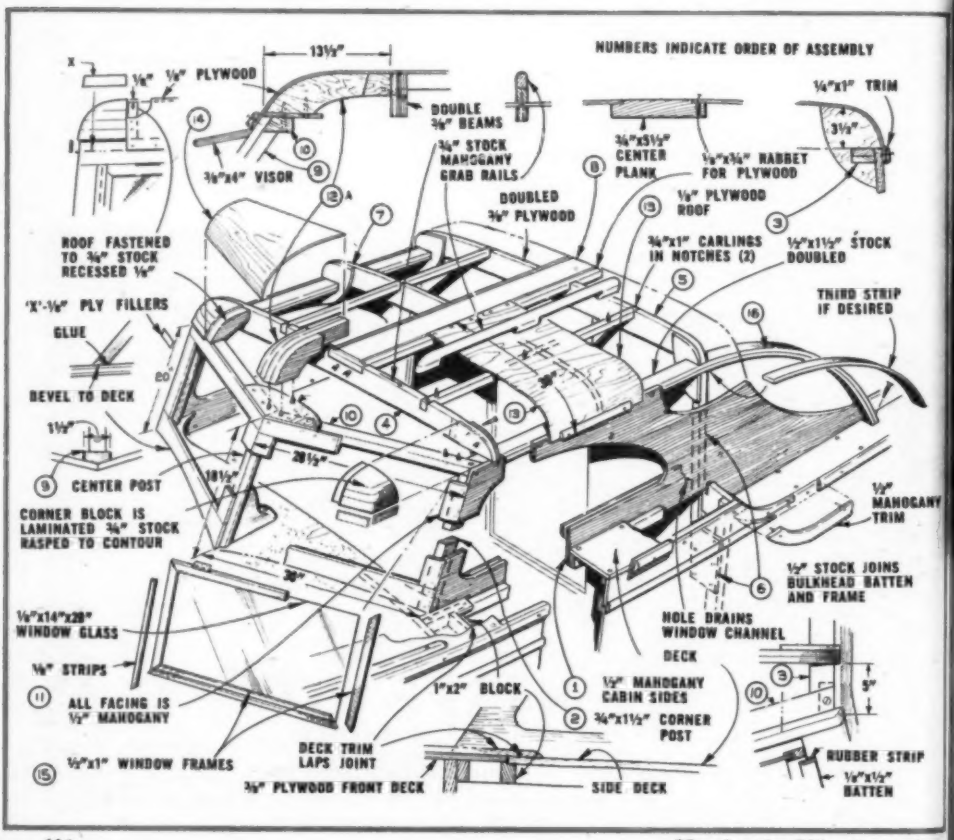
annoy you.

The photo at the bottom of page 115 shows how the plywood gussets are screwed and glued to a frame joint. Oak battens join the transom upper and lower panels and form the motor clamp board. All battens are pre-notched before gluing and screwing to the transom inner face. Do not notch the transom panel itself. See drawing on page 114.

With all frame ribs now complete, along with transom and stem, you can now cut the inner keel, or keelson. The keelson is the backbone of the upside-down hull frame, which you must now set up on the floor jig. A floor jig is not

CABIN ROOF is ⅛-in. ply which can be bent easily. Layer of Fiberglas covers it.

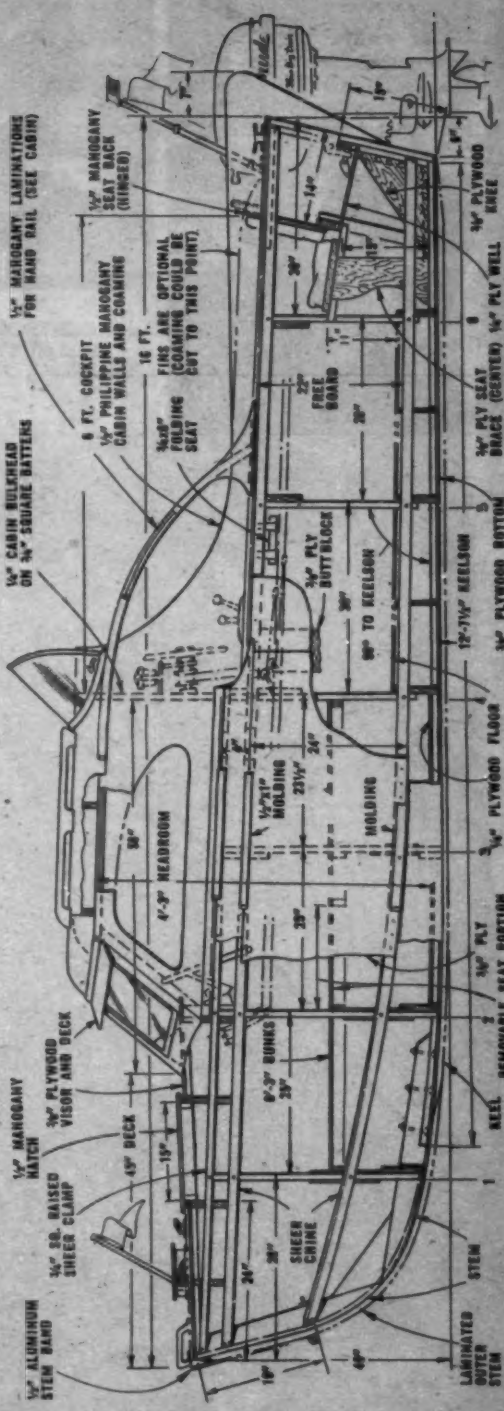
CABIN CONSTRUCTION. CIRCLED NUMBERS INDICATE BUILDING SEQUENCE.



necessary if you are working on a wooden floor. But a home-built boat is always a garage project, it seems, so you need the jig shown in the drawing on page 118, as you must build the hull upside-down.

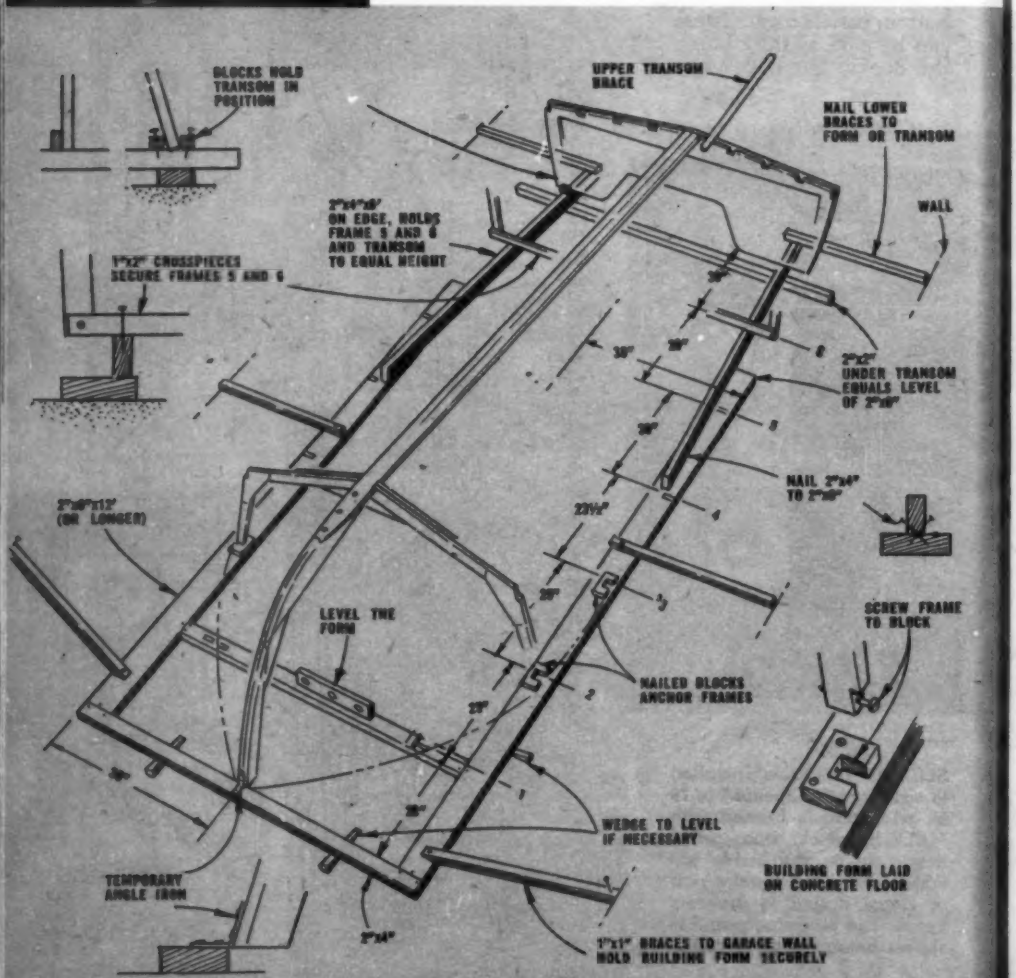
While the hull is still on the jig, prepare to attach the spray rails along the chine. These do two things. They divert spray from lapping up along the hull and they seal the open joint where the sides and bottom panels meet. These can be oak, as they bump the docks, but mahogany

SLIDING DOOR is installed to save space. Opening is 18 in. wide and is framed with ¾x1½-in. stock. Door panel has cleat on the inside top which slides between a pair of cleats nailed to the roof beam. The retaining panel is shown being nailed in place.



PROFILE OF FRAMED-UP BOAT. RAISED SHEER ALLOWS MORE ROOM IN CABIN.

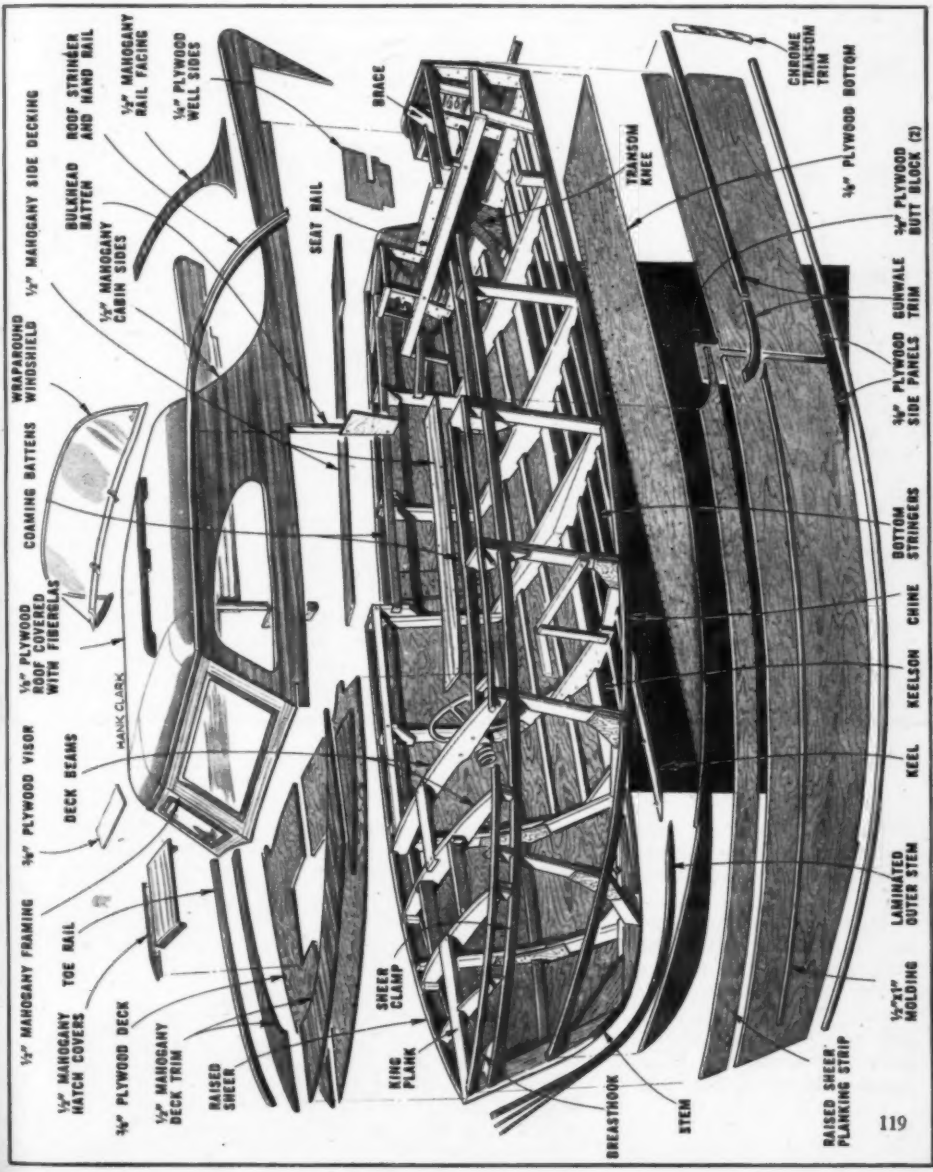
CONTROLS, left, are installed in cabin as well as cockpit. The bunk has removable section for forward seating. Above, preparing for lunch in the cockpit.



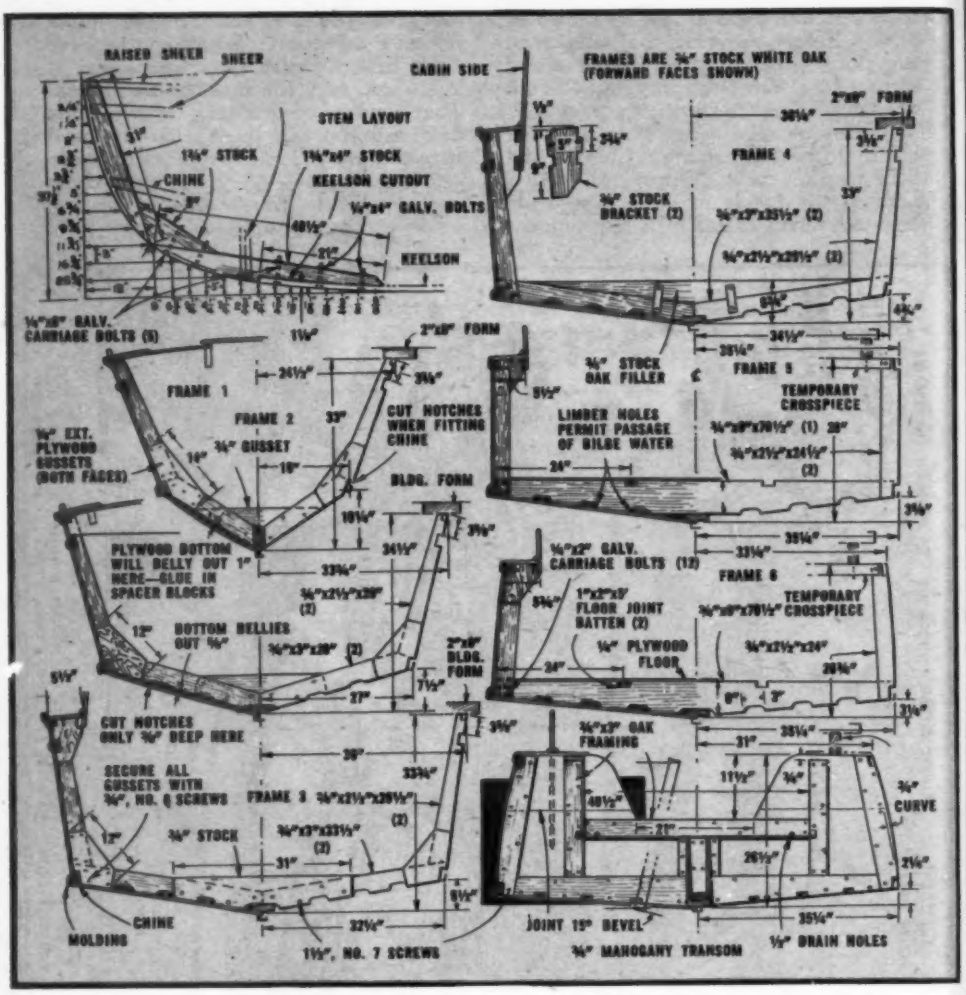
BUILDING FORM IS MADE LEVEL AND RIGID AND FRAMING IS ERECTED UPON IT.

works so much easier and is almost as hard. Before securing the rails, sand the chine edge smooth. Use glue and screws to attach the spray rails. Foot pressure helps, as shown on page 112.

At this point you can start enjoying life by knocking out the jig blocks and lifting up the bow, on props, to have a look at the inside of your new pride and joy. This is really a big moment and gives you a chance to inspect joints for later attention. When you recover from this pleasure, you can lower it again and face the last "bottom" task. That consists of brushing on two coats of Firzite, sanding these when dry, and brushing on at least two coats of a fine exterior enamel of your own color choice. White Firzite was chosen because it covers the plywood grain very



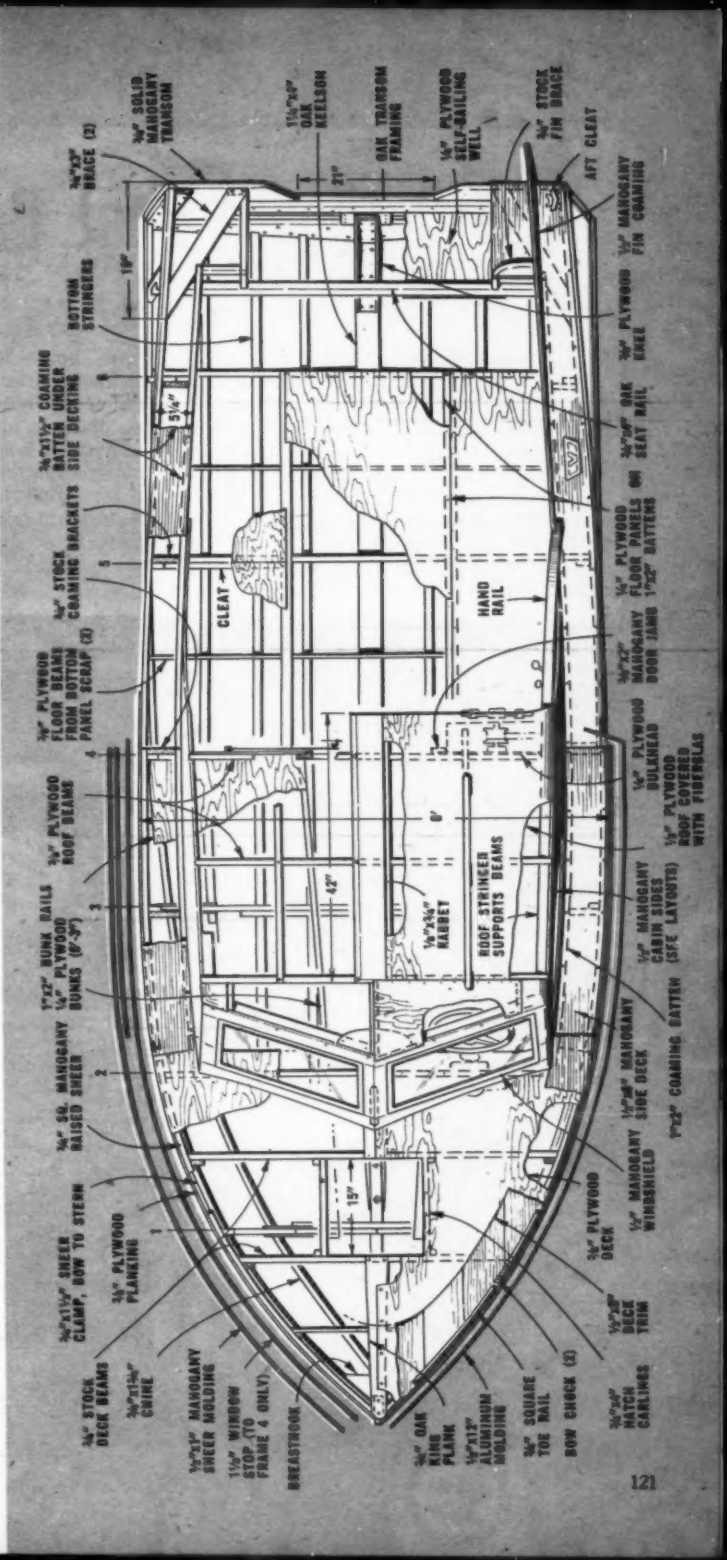
EXPLODED VIEW OF ENTIRE BOAT. SIDE PLANKING IS COMPOSED OF THREE PIECES.



FRAMES, STEM AND TRANSOM ARE BUILT FIRST, THEN ERECTED ON BUILDING FORM.

well and is the best base color for the white enamel that will cover the finished sides.

With the hull propped up, you can now insert the top short sheer rail and lay in the four-inch side filler panel. The photo on page 115 and the drawing on page 119 show this filler panel. Reasons for this



PLAN VIEW of hull framing. Note intermediate floor beams and battens to support cockpit floor.

filler are worth noting. It gives you a stepped-up deck, for seaworthiness, and more room for the two bunks. Also, it gives the cabin windshield a lower profile. Best of all, it permits the use of 24-inch side panels, eliminating the need of cutting 28-inch panels out of 48-inch stock.

Before doing any "topside" work, cradle the hull securely. Oak knees joining the sheer rail to transom batten are placed only after you know the hull is resting true. Bevel ends to suit and screw through the sheer rail and through the transom batten with two-inch No. 10 screws, two per joint. Now you can put a motor on the transom. The notch was first designed to take two 15-hp motors but two mahogany wings now close it

[*Continued on page* 156]

LEFT, launching of the completed cruiser for a trial run.

'59 Outboard Boat Preview

By Jack Smith

IF you want an outboard boat this year, you have plenty to choose from. A quick tally of listed manufacturers even surprised us. There are 285! At an average of seven models each (some manufacture over 30) that means there are close to 2,000 on the market.

These boats include everything from prams to cruisers over 20 feet in length. That there are so many is indicative of the popularity of boating. It is also to your advantage when you buy, for shoddy manufacture can't stand up long to such competition.

Photo courtesy Mercury Outboard Motors

CRUISERS, INC. builds this 19-footer which has 87-in. beam, roomy cockpit and cabin, two bunks, space for optional head. Sturdily constructed, she's one of the better outboard cabin cruisers, sells for $1,655 with steering, lights and all hardware installed.

Cruisers, Inc., 804 Pecor St., Oconto, Wis.

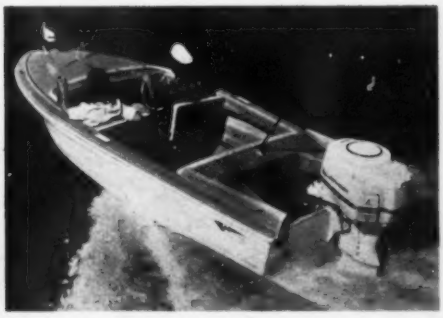
Boating, as the millions who have entered the sport have learned, is a fraternity—and word soon gets around about boats poorly designed and built. It's safe to say that you know at least one member of the fraternity. So, if you plan on getting a boat, talk to him and meet the friends he has made on the water. Then talk to each owner individually. He'll talk plenty—and in spite of the human tendency not to admit to a stinging, you'll be able to distill a lot of truth. Find out why he bought the boat he has, how he uses it and how it meets his needs. Learn if it's a "wet" or a "dry" boat, a "pounder" or a smooth rider. Last, examine each boat to see how the construction has stood up to the test of use for a year or two. Then go see your dealer. •

CHETEK Duchess is 17 ft. with an 82-in. beam. Planking is lapstrake plywood over steam-bent oak ribs. She sells for $935.

Chetek Boat Corp., Chetek, Wis.

ARKANSAS TRAVELER line includes this sporty 16-ft. runabout which has a 71-in. beam. It's made of Fiberglas, costs $850.

Southwest Mfg. Co., 14th & Bond St., Little Rock, Ark.



POWER CAT cruiser is 20 ft. long, has broad beam common to catamarans. Ride is smooth and fast over choppy water with a pair of 70-hp Mercury engines. Contact manufacturer for price.

Power Cat Boat Co., 13512 Lakewood Blvd., Paramount, Calif.

WHITEHOUSE 16-ft. model is Fiberglas, has a 78-in. beam, weighs 585 lbs. Equipped with steering, windshield, bow and stern handles and upholstered seat cushions, it costs $895.

Whitehouse Reinforced Plastics Co., Route 3, Box 219, Fort Worth, Tex.

JOY CRAFT hull is plywood-planked. It's 16 ft. long, has a 79½-in. beam, weighs 677 lbs. Price of $930 includes convertible top. The two spotlights, horn and hand rails are extra.

Joy Craft Boat Works, Box 227, Lutz, Fla.

PENN YAN model XGS is a 13-footer with a 60-in. beam. It is strip-planked over closely spaced steam-bent ribs. Price is about $650 with the steering, hardware and windshield.

Penn Yan Boats, Inc., Penn Yan, N. Y.

U-MAK-IT has complete line of easy-to-build kits for the amateur. Flying Cloud cruiser is 18 ft. with a 6-ft., 10-in. beam. Cabin has two bunks and space for head. Price of kit is $609.

U-MAK-IT Products, DeLand, Fla.

SEA MAC Hard Top is a good family day cruiser. Planked with plywood, it's 19 ft. with a 7½-ft. beam, sells for about $1,395. Motor shown is a 50-hp Evinrude Starflite.

Fred McCarthy Boats, Riverside, N. J.

LUGER line of 35 boat kits includes the Saratoga. It's 18 ft. with a 93-in. beam, has a one-piece Fiberglas cabin which is installed in minutes. $576, freight paid.

Luger Industries, 9280 Access Rd., Minneapolis 20, Minn.

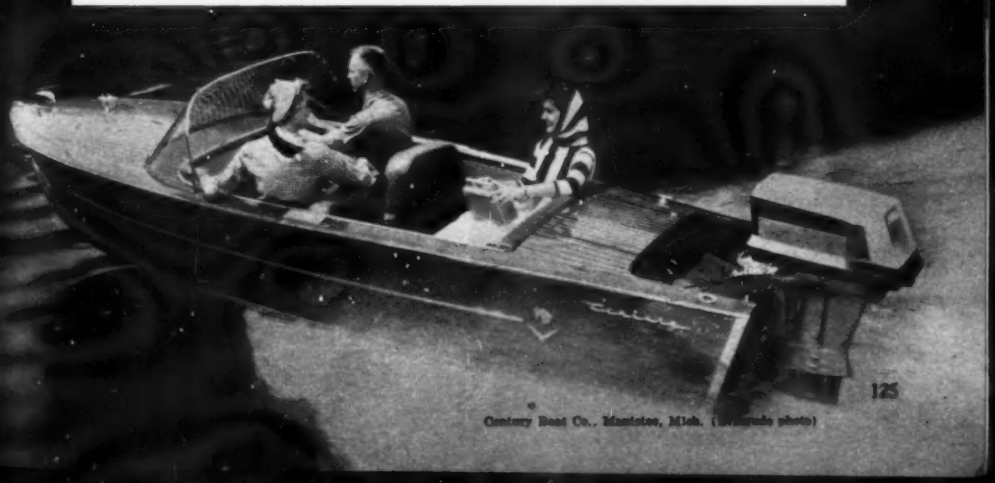
Minnetonka Boat Works, Inc., Wayzata, Minn.

TONKA CRAFT lapstrake skiff costs $545, is 16 ft. with a 69-in. beam. Strakes are 5-ply marine plywood, topsides are mahogany. Comes with walk-through or center deck.

Glasspar Co., Santa Ana, Calif. (Evinrude photo)

GLASSPAR hulls are designed with sharp entrance, flaring bow and hard chines for smooth ride. This 14-ft. Sport Lido has a 64-in. beam; $775 with upholstered seats.

CENTURY styled this outboard runabout along the lines of an inboard. The Roan is 15 ft. with a 67-in. beam. It's planked with African mahogany, has decked-over storage space with hatch behind rear seat. $1,395.



Century Boat Co., Manistee, Mich. (Evinrude photo)

NADEN CARTOPPER weighs 127 lbs., is 12 ft., has a 54-in. beam. The aluminum hull has mahogany seats, costs $275. The motor is a 10-hp Scott, the maximum recommended.

Naden Industries, Webster City, Iowa

CHAMPION BOATS are plywood completely covered with Fiberglas. The 14-ft. Saber has a 72-in. beam, sells for $695. Frame kit cost is $195; plywood-finish kit is $295.

Champion Boats, 1524 W. 15th St., Long Beach, Calif.

CUSTOM CRAFT Sea Ray Runabout is a 15-ft. model with a 72-in. beam. Built of Fiberglas, it's priced at $1,007.50. The motor driving it is a 35-hp Evinrude Lark.

Custom Craft Marine, Buffalo 7, N. Y.

ARISTO-CRAFT boats are a sleek, sporty type designed for speed. The 15-ft. Matador has a curved-back seating arrangement that continues around the sides, is $995.

Atlanta Boat Works, Pylant St., N. E., Atlanta 6, Ga.

GENERAL MOTORBOAT builds this 21-ft. Little Mariner Fishawk Overnighter. Beam is 87 in. and she's plywood-planked over oak framing. Approximate price is $2,365.

General Motorboat Corp., Mayo, Maryland

TAFT MARINE WOODCRAFT sells 21 kit boats from prams to 18-ft. cruisers. This is the 16-ft. Raceabout which has a 70-in. beam. Kit is priced at $220, freight paid.

Taft Marine Woodcraft, 636-39th Ave., N.E., Minneapolis 21, Minn.

REVEL CRAFT 23-ft. Hard Top Skiff has 8-ft. beam. Lapstrake plywood sides and sheet plywood bottom cover mahogany frames. Boat has a large cockpit with two bunks and a head forward. Fully equipped, it's $2,495.

Revel Craft Mfg. Co., P. O. Box 20, Arnold, Maryland (Evinrude photo)

TROJAN'S BIMINI is 19 ft. with 91-in. beam, has two bunks, space for head. It's $1,995. Here, two 40-hp Scott motors power it.

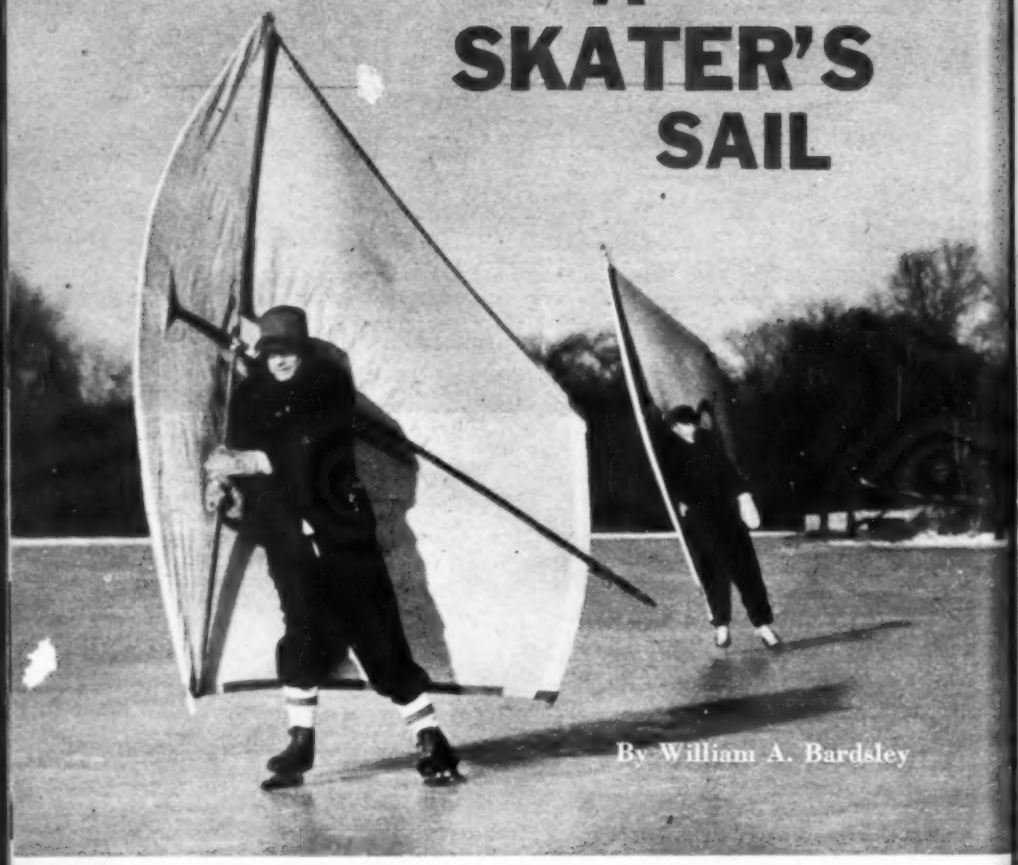
Trojan Boat Co., Lancaster, Pa.

CROSBY Custom Capri is a 16-ft. Fiberglas runabout with a 70-in. beam. Price is $1,239. Evinrude 35-hp Lark is power used.

Crosby Aeromarine, Grabill, Indiana

Skim Over The Ice With...

A SKATER'S SAIL



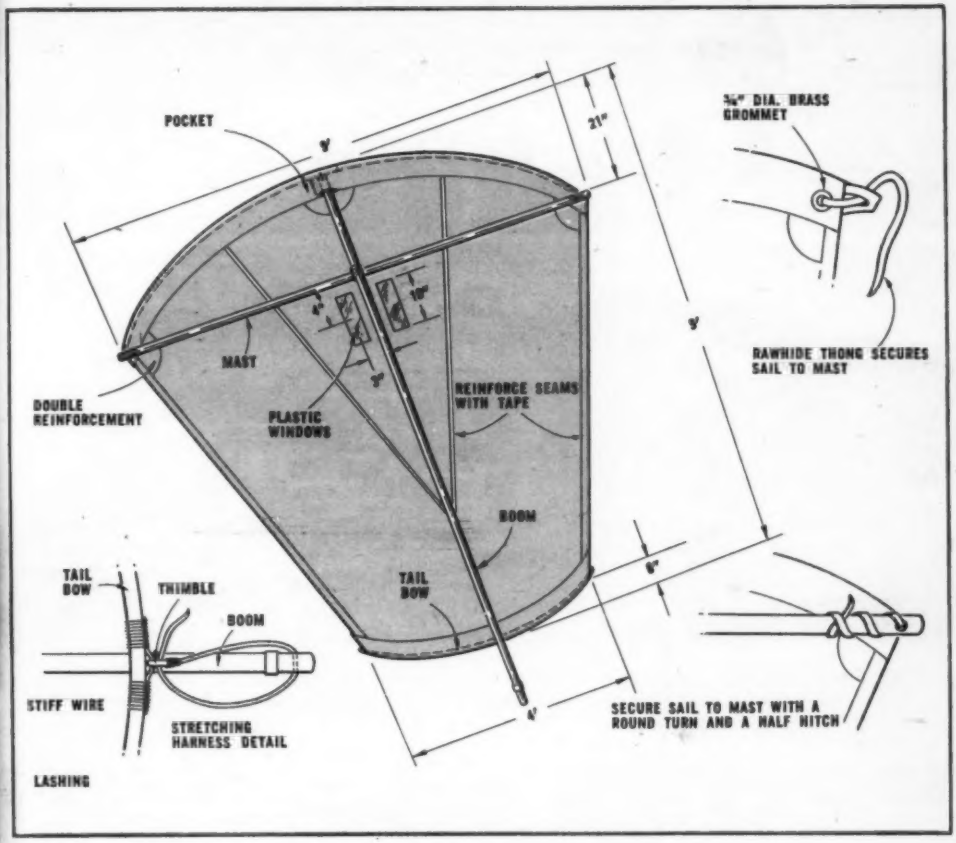
By William A. Bardsley

SKATE sailing might be described as the fastest pedestrian sport in the world except for jaywalking on the Hollywood Freeway. And until something comes along to top its 50 to 60-mile-per-hour maximum speeds, that claim will stand.

All that's required to take up this exciting pastime are a pair of skates, a good stretch of ice and a sail that can be made at negligible cost in any home workshop.

For sail material use either unbleached muslin or lightweight sailcloth. The sail area is 55 square feet but an extra few feet of material should be purchased to allow for basting and seam reinforcement.

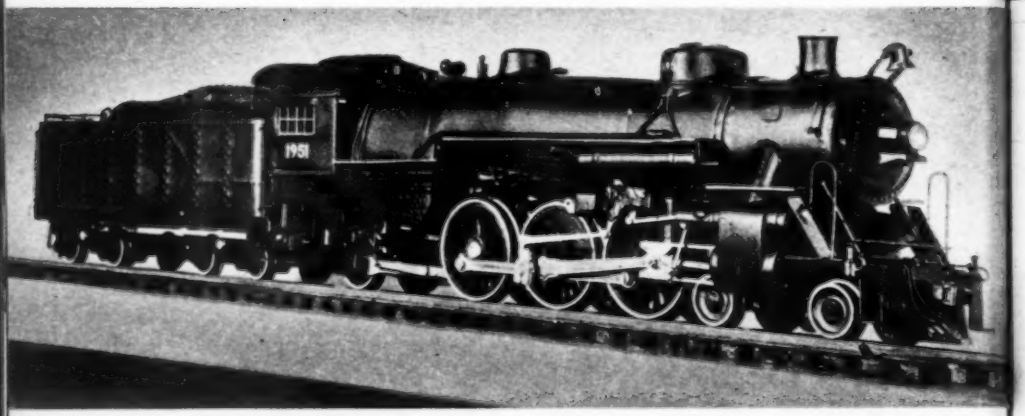
The sail will have a mid-seam and a V-shaped insert in the forward end. Lay down two lengths of sailcloth with their selvage edges parallel to the long free sides of the sail and bordering the V insert. Cut [*Continued on page* 157]



SAIL, MAST AND BOOM roll into a neat, portable bundle for easy carrying. This is when you'll appreciate the advantages of a two-piece mast and a two-piece boom.

CORRECT POSITION for holding sail is demonstrated. One hand is usually enough except at high speeds in a strong wind. Note position of the sail's two windows.

Golden Hammer Award Winners

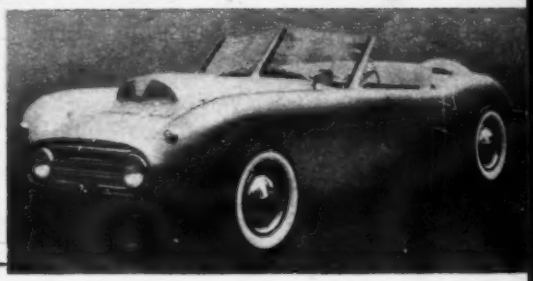


LOCOMOTIVE, HO gauge, was made by John Matthews, Woodbridge, Ont., Can., using hand tools only. Formed from pieces of scrap brass, this project took 220 hours to complete.

MODEL CIRCUS includes "big top," menagerie, side show, power plant and circus train—over 20,000 pieces in all. Its creator, Harold Rupp, Fredonia, N.Y., started it in 1944.

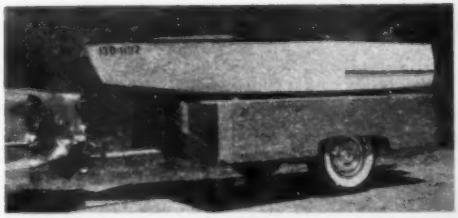
The following craftsmen have been awarded GOLDEN HAMMER TIE BARS for their projects: W. R. Lingham, Memphis, Tenn.; Rudy Pelletur, Brooklyn, N. Y.; W. H. Biggart, Springfield, Ill.; W. E. Wedemeyer, Donahue, Iowa; Robert C. Doeffinger, Ft. Wayne, Ind.; Joseph N. Richards, Groveton, N. H.; John A. Speerbrecher, Youngstown, Ohio; Davie Dull, Aliquippa, Pa.; Howard Jaeger, Cleveland, Wis.; Charles J. Kiker, Morningside, Md.; Frank Swander, Glen Head, N. Y.; Ferdinand C. Hanson, S. San Gabriel, Calif.; Dick Mitchell, Indianapolis, Ind.; Robert D. Mason, Bettendorf, Iowa; G. N. Houck, Glenview, Ill.; Paul Vinsant, Davenport, Iowa; Roger E. Otterstein, Fayette, Iowa; Charles E. Warner, San Rafael, Calif.; Lawrence D. Juengel, Rochester, Mich.; John Ekstedt, Lynnwood, Wash.; Michael J. Soski, Port Clinton, Ohio; [Continued on page 166]

"MONG SPORT" biplane cost $700 and six months' time to build, cruises at 110 mph. Builder-pilot Archiel Yarger, Angola, Ind., has logged over 30 hrs.



SPORTS CAR mounts a Fiberglas body on a shortened Kaiser frame. Gordon Bloomquist, Jamestown, N.Y., began working on the car last March, finished 380 hrs., $1,100 later.

BOAT AND TRAILER are passports to pleasure for Lieut. R. E. Churchill, RCAF Sta., Lac St. Denis, Que., Can., who built both. Compartments in the trailer hold camping gear that would otherwise take up car space. Boat, a 12-foot runabout, is made of plywood.



RADIO-CONTROLLED cruiser was designed and built by Donald Hawthorne of Chicago. Sixty-pound, 5½-foot craft achieves 15 mph powered by 1-hp modified Evinrude engine.

REMODELED KITCHEN was a 21-month task for Charles Pryor, Dayton, Ohio, who did all electrical, plumbing and cabinet work including garbage disposal unit in sink.

Each craftsman whose project is shown receives a 24-karat gold-plated Hammer and a Workbench Award Certificate. Runners-up will be sent a beautiful gold-plated Golden Hammer Tie Bar or MI's Certificate of Merit. How about sending us a *black-and-white* photo and *full* description of your latest project? Photos of you and your workshop are also eligible. Send all entries, with return postage enclosed, to MECHANIX ILLUSTRATED Golden Hammer Awards, 67 West 44th St., New York 36, N. Y. Entrants are advised that MECHANIX ILLUSTRATED cannot accept respinsibility for customs charges, duties, taxes, etc., levied against Golden Hammer and Golden Hammer Tie Bar winners outside the United States.

FLEXPORT fits on any door, provides passage to and from house for canine and feline pets. Prices, $16.50 to $49.50.

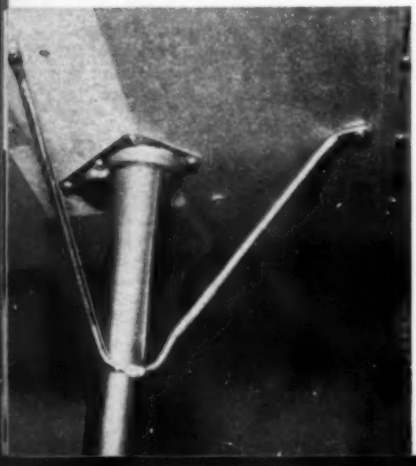
Turen, Inc., Beaver Pk., Danvers, Mass.

DURO PLASTIC PORCELAIN does neat touch-up jobs on chipped household appliances.

Scharff & Co., 10 Rockefeller Plaza, N. Y. C.

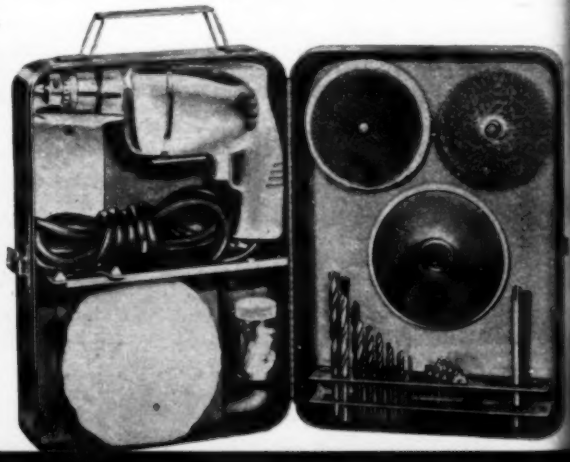
SPECIAL BRACE designed by Dennix stops wobble in table legs; set of four $1.69.

Dennix Products, Inc., 33-04 Downing St., Flushing 54, N. Y.



45-PIECE drill kit includes metal carrying case; 1000-rpm drill runs on AC or DC. $54.95.

Oster Mfg. Co., 5055 Lydell Ave., Milwaukee, Wis.



GE-HALIN, a new type of polish from W. Germany, shines all metals and glass.

Certified Mfg. Co., Ge-Halin Div., 41 E. 11 St., N. Y. C.

MIXER-DRILL makes any kitchen mixer into an electric drill. Complete set: $4.95.

Stewart Co., 183 Mt. Curve Blvd., St. Paul, Minn.

CAN OPENER de luxe has special spur to accept other kitchen accessories. It's designed to mount under any kitchen cabinet.

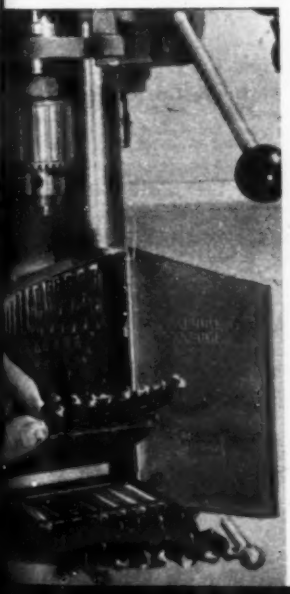
Kitcheneering Co., 6618 E. 37th St., Kansas City 29, Mo.

ELECTRIC knife sharpener strokes blade to a sharp edge without grinding. Easy to use and store. $11.95.

Burgess Vibrocrafters, Grayslake, Ill.

HIGH SPEED drill kit contains 29 drills from 1/16 in. to ½ in. With steel case and index holder, $11.98.

Oxwall Tool Company, 928 Broadway, N. Y. C. 10

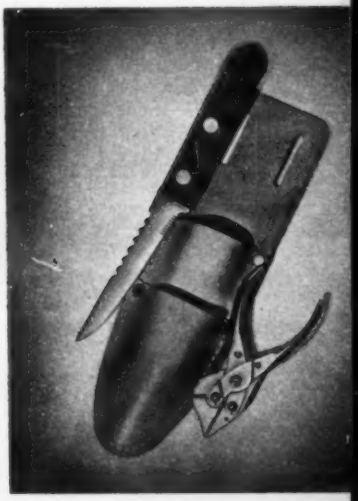


LOCK-EASE, a graphited lock fluid, keeps locks rust free.

AGS Co., Muskegon, Mich.

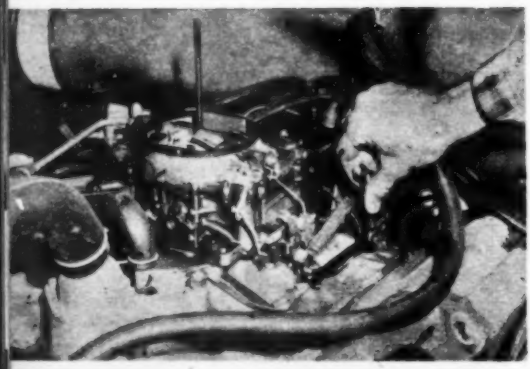
FISHERMAN'S KIT contains parallel action pliers and knife. With belt-on scabbard, $8.95.

Gregory's Mailbox, P.O. Box 6235, Dallas 22, Tex.



CAR CARE

STOP! TEST BRAKES in your own driveway before venturing out into traffic and you will appreciate the confidence that comes from knowing just how fast you can stop your automobile.



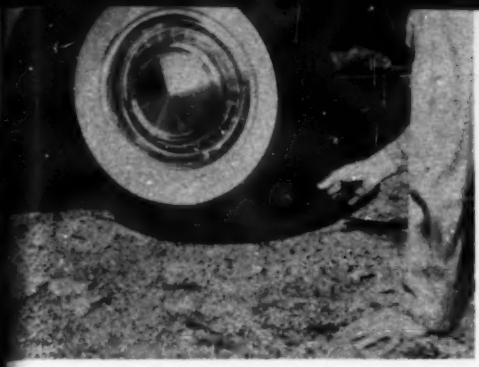
SAFETY

By Frederick C. Russell
Member, Society of Automotive Engineers

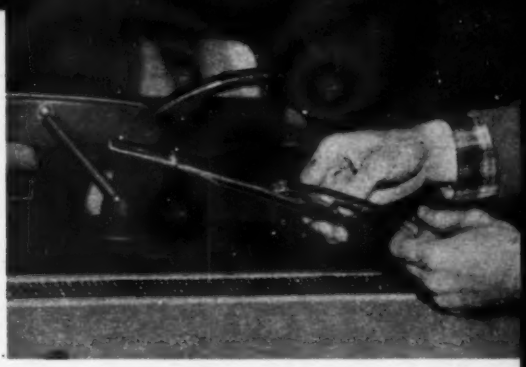
THE subject of safety awheel has been batted around to a point where it now appears to be all things to all drivers. But to the car itself the highway is a clear, straight stretch of common sense. Remember, a road never got up on its hind legs and belted a car in the nose! Head off a possible accident and

CHECK your car's throttle control linkage of the automatic transmission at the carburetor.

ADJUST HEADLIGHT beams by aiming them at a horizontal line marked on garage doors.

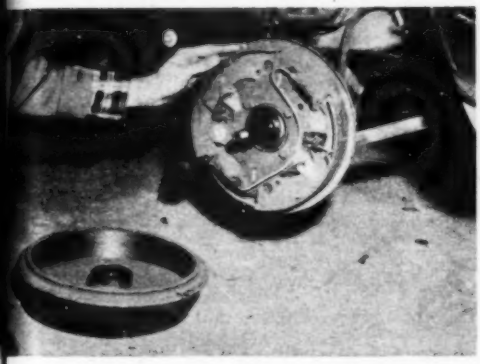


SPINNING the front wheel will give you fast check for wobble and tire balance.



PROPERLY OPERATING windshield wipers are absolute necessities for safe driving.

BRAKE LINING should be checked to forestall any chance of scoring a brake drum.

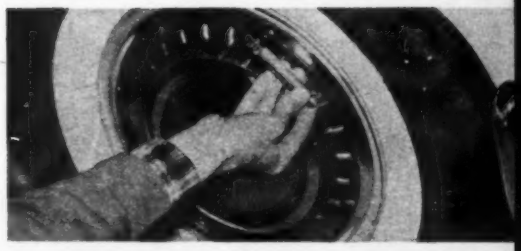


TRACE and eliminate gas leaks. Look for these around carburetor, pump, fuel line.

STARTS AT HOME

you will also have headed off trouble with the car.

In cold damp weather every seasoned driver tries out the brakes as he rolls down the driveway, just to make sure they won't grab and throw the car into a skid when it gets out on a wet or icy street. Down at a shop today I've just looked over a car that not only went into a skid but which needed a new rear spring as well. One of the rear brakes



TIRE PRESSURE should be maintained at prescribed levels and checked frequently.

BE SURE hood is locked in place; otherwise it may fly up while you're driving.

CAR CARE

WARM UP a cold engine for a few minutes before pulling out into flowing traffic; this is good insurance against stalling.

WHEN DESCENDING a long downgrade or a steep hill, drop the car into second gear or, if it's automatic transmission, into Low.

locked as its wheel went into a chuck hole. The right rear shock absorber was too stiff to cushion the jolt and the spring simply couldn't take the load. Blammo—50 bucks!

Good sense in driving actually results in better operation of the car. Last summer an owner discovered that the engine of his car ran cooler because he decided to break his habit of trailing other cars too closely. This habit had forced him into a number of sudden stops which sent coolant forward into the top tank of the radiator. With non-pressure system water then went out the overflow. The engine heated on long grades, pinged noisily and raised hob with the valves.

On his return from a Southern trip a friend of mine had this experience. It seems that he became annoyed because most of the cars were rolling around 55 on what looked like a speedway. He decided to run along at 70 even though that was 10 mph higher than the posted speed limit. Suddenly after ten miles of this the engine's temperature gauge showed danger. His story was an amusing episode of delay and confusion but at long last he found that because the temperature was nearly 100° the other drivers who, were holding down their speed were avoiding the very thing his disregard for safety produced. Experts use the term "usage of the road" to describe the behavior pattern of majority of the drivers [*Continued on page* 158]

THOSE TIRE MARKS from locked brakes can lead to plenty of trouble including fire, inoperative brakes and ruined tires.

STEERING WHEEL should not be turned unless car is in motion. Too many dead-stop turns can wear bald spots in your tires.

FRESH PAINT TIPS

IMPERIAL Rapid Brush Cleaner cleans all bristle and nylon brushes in a matter of minutes. Left overnight in this solvent, hardened paint will soften and fall away from the bristles. Also, it can be used over again: allow paint to settle and then pour cleaner back into its can.

Wilson-Imperial Co., Newark, N. J.

RESEAL an opened paint can by tamping down the lid with a mallet and scrap wood. To avoid any spattering, wipe paint from the gutter of the can before tapping the lid back in place.

WORK PAINT OR VARNISH into patching plaster and you won't have to prime the patched areas later to ready them for painting.

TAPE RECORDER CABINET

RADIO AND HIGH FIDELITY

This compact unit will go wherever words are spoken, or songs sung that are worth taping and keeping for your reminiscent tomorrows.

If your tape recorder is used only to pick up music that originates from your hi-fi receiver, then you were wise to build the recorder into your ensemble as a permanent fixture.

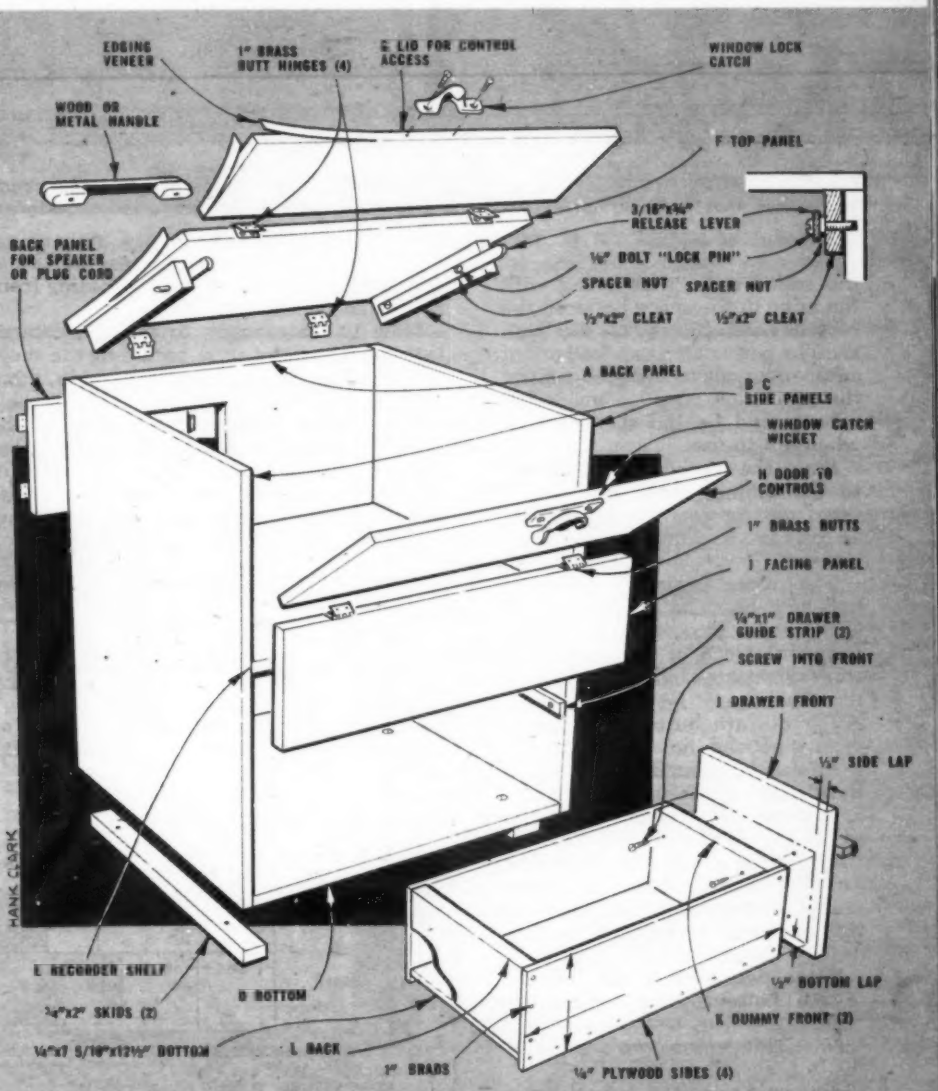
But if you're the sort of guy who is fascinated by the impromptu and spontaneous vocal outpourings of, say, a clutch of youngsters living it up in the backyard, then this portable recorder cabinet is for you.

While most of today's tape recording machines are more or less portable, many of them still require the removal of the reels before they can be closed and transported—a nuisance which is eliminated with this cabinet. Also, you will have no further need for the recorder lid or for a separate case for your tapes since this cabinet is completely enclosed and incorporates two large drawers in the base that can house a

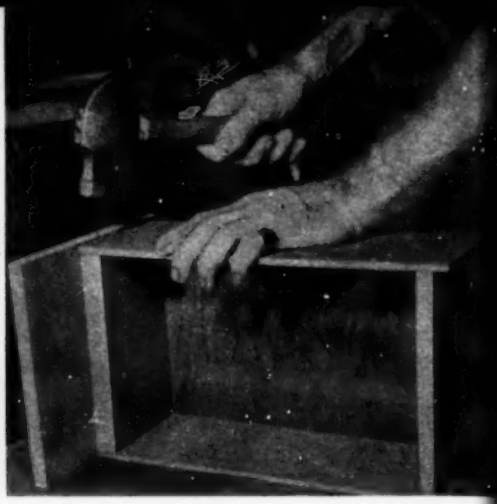
complete library of seven-inch reels. When the lid is flipped open the control knobs are at your fingertips and the reels are ready to roll.

You are accessible to the recorder controls through the openings provided by the two folding panels at the top and front of the cabinet. When changing reels, slide back the two release levers installed under the back portion of the top hinged panel and open. Now the entire deck of the machine is available to the operator.

The microphone usually remains plugged into its jack, so the dimensions have been made ample enough to store



FOLDING PANEL and facing are attached to cabinet with finishing nails and glue.



DRAWERS are simple plywood boxes built to hold tape reels and other accessories.

the coiled mike wire along with the mike in the space between the recorder and either of the side panels. The power cord can feed out of an opening cut in the rear wall of the cabinet. It is coiled inside the cabinet and behind the recorder when not in use.

Since the recorder is not bolted to the cabinet shelf, it is easily lifted out for cleaning or repairs, or for carrying alone without the cabinet.

The entire project is made of half-inch plywood and a handful of hardware. However, for a really beautiful piece of furniture you can substitute half-inch Philippine mahogany for the plywood. All joints are butted and joined with glue and finishing nails.

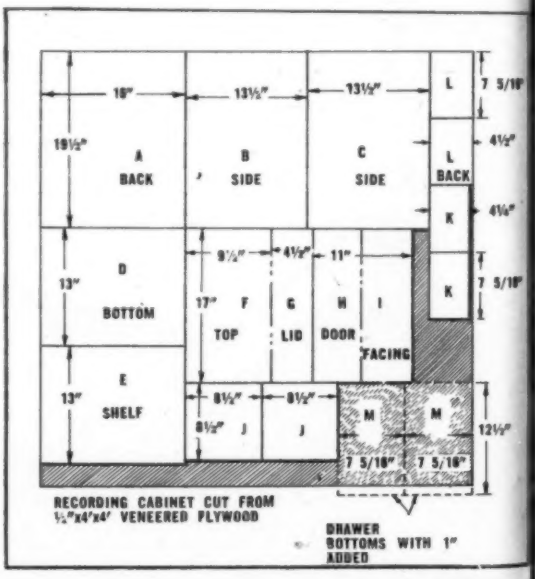
As can be seen from the plans, the design of the cabinet is pure and simple. To start, saw the three sides, the shelf, bottom, top and front pieces to size, remembering to cut out the back speaker opening (if necessary) on the rear wall. Now measure and attach the two drawer guides to each side wall, and the two skids to the outside of the bottom piece before assembling.

Next, hinge the two panels of the top together and attach the sliding bolt mechanism, lock catch and handle. Then assemble the folding front panel and facing.

Now you are ready to put the cabinet together butt-joint style, including the shelf.

The plywood drawers are made next. Construct these carefully. Check their measurements against the height of the drawer guides and width of the cabinet before assembling to insure an accurate fit. Drawer fronts are screwed and glued to the dummy fronts as detailed in large diagram.

All that remains now is to attach the top



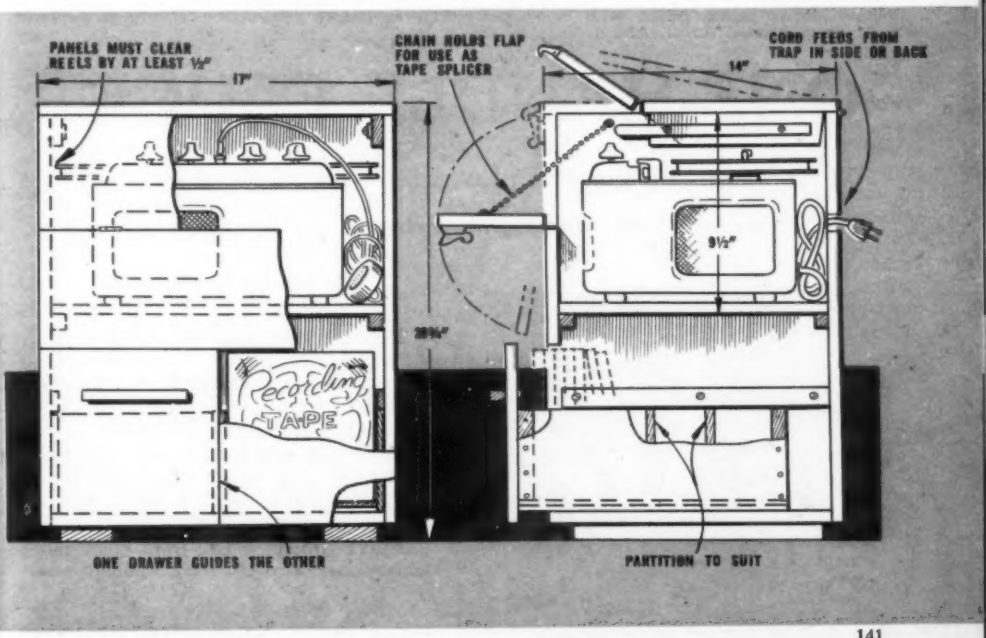
THREE WALLS, a shelf, floor and hinged lid make this cabinet a one-night project.

PORTABILITY of the cabinet is retained in spite of ample-size storage capacity.

and front panels and put on the veneer trim.

Finish your cabinet to suit the decor of your own "recording room." Don't cover up an attractive wood grain with paint, however. Stain it with a good coat of wood filler. Follow this with at least three applications of clear varnish, sanded lightly after each of the first two coats. A gleaming natural wood finish will "fit" in any surroundings. •

—*Hank Clark*

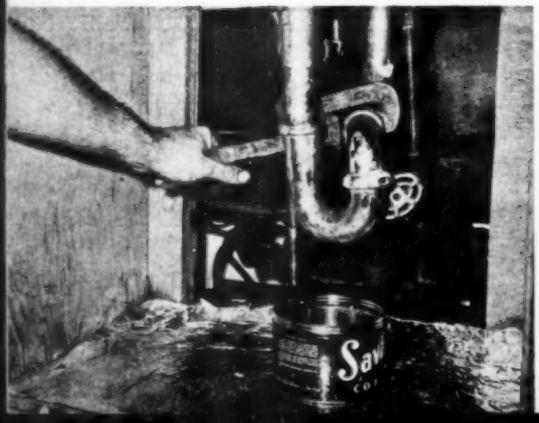


ONE-HANDLE FAUCETS are easily installed on all standard sinks, bathtubs and showers. Inset shows same basin with two-handle fixtures before conversion. Spray is optional.

ONE-HANDLE FAUCET

Fingertip control plus minimum maintenance make these units the fixtures of the future.

By David X. Manners



IT'S easy to modernize outdated bathroom and kitchen fixtures by replacing them with these new one-handle faucets. Companion water spray attachments are also available. These will be especially appreciated by the woman of the house when she shampoos her hair, washes the baby, or

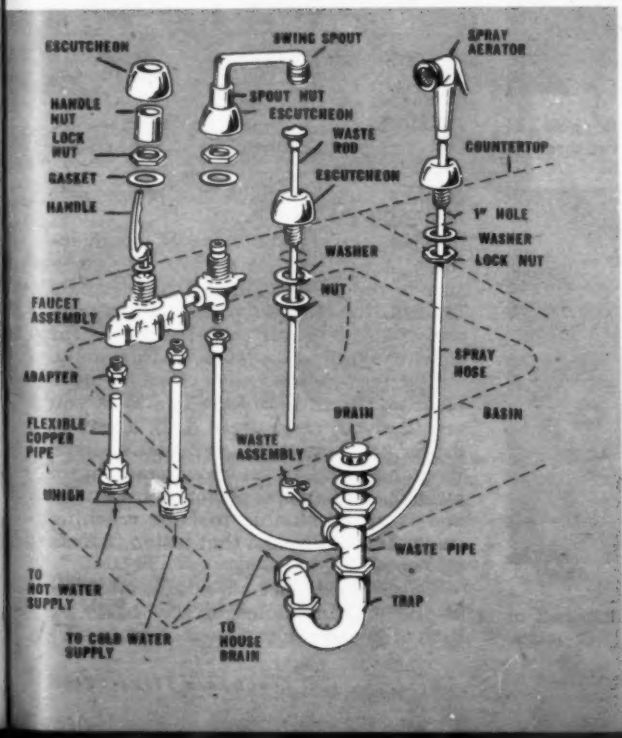
REMOVE drainpipe and trap. Place receptacle under trap to avoid spilling waste.

SHUT supply lines before disconnecting.

FAUCETS may disconnect at union fitting.

BASIN WRENCH grips hard-to-reach nuts.

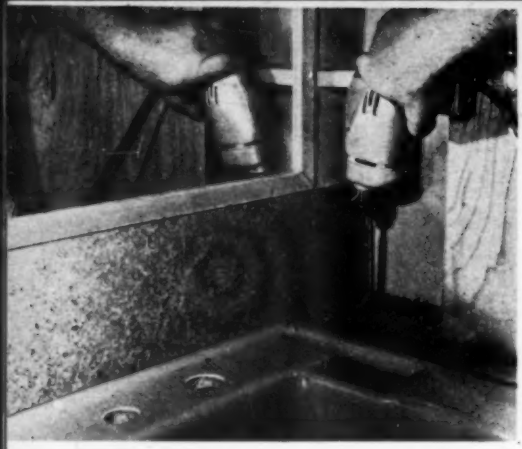
SOME FAUCETS are removed from above.



rinses off a stack of soapy dishes.

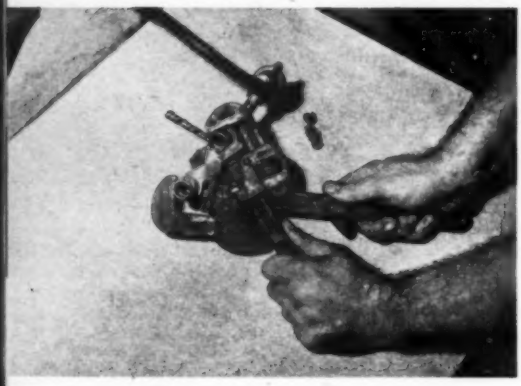
Made by Moen Faucet, a division of Standard Screw Company, Elyria, Ohio, one-handle fixtures have found favorable acceptance with the public and bid fair to replace dual faucet installations in the future.

One-handle control incorporates a single handle that regulates and mixes water from both hot- and cold-water lines. Water is turned on by raising the handle and off by lowering it. Unlike conventional faucets, these units will release water of the desired temperature no matter how many times they are turned on and off. This means that the water can be shut off, then turned on again, without altering the

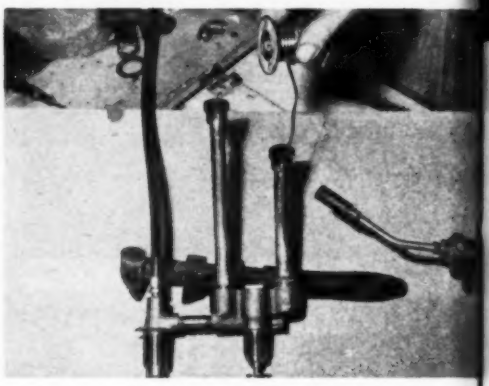


DRILL 1-inch hole in counter top at side of basin to accommodate spray attachment.

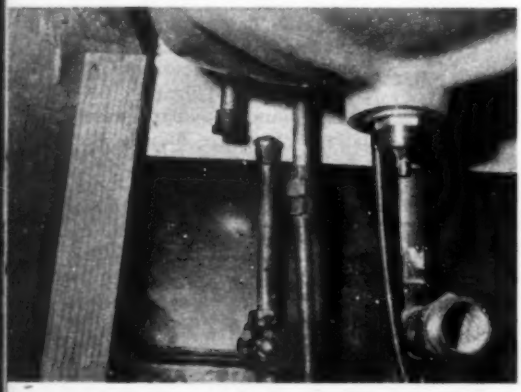
SPRAY HOSE attaches to bottom of spout pipe; screw adapters into handle assembly.



TIGHTEN adapter fittings with pair of wrenches taking care not to strip threads.



FLEXIBLE copper pipe joins connections; first apply flux, then heat and solder.



ONE SUPPLY LINE is shown connected at union. Use pipe compound at all joints.

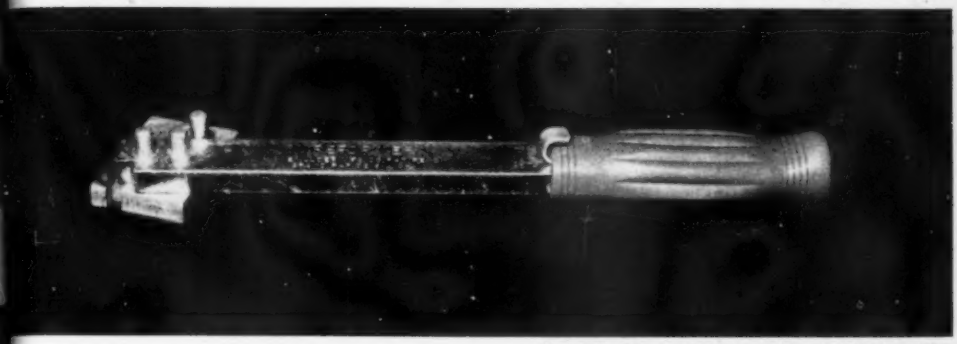
temperature at which the water was originally set.

When closing, the valve of a conventional faucet works *against* the pressure of the water. But with one-handle faucets the water pressure actually *assists* this shut-off action and goes far toward eliminating leaks and dripping.

You needn't be a journeyman plumber to install these fixtures. The tools you are likely to need are a drill, a screwdriver, a blowtorch, a pair of pipe wrenches and a monkey and basin wrench. A basin wrench costs about $2 and is an invaluable tool for reaching under-the-basin nuts that fasten faucets and spouts.

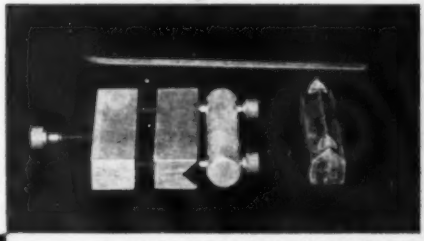
These faucets are adjustable and will fit the existing holes of any basin or bath of ¾-inch [*Continued on page* 161]

NEW TOOLS FOR FORMING METALS



Vinkemulder Mfg. Co., 917 Princeton SE., Grand Rapids 6, Mich

WIREFORMER can bend wire up to 5/32-inch diameter. End plate, which also serves as wire cutter, is gripped in vise during use.



MIGHTY MIDGET consists of a round and a V-shaped form block. An Allen wrench is used when operating this vise-like tool.

Edes and Co., 114 N. 13th St., Philadelphia 7, Pa.

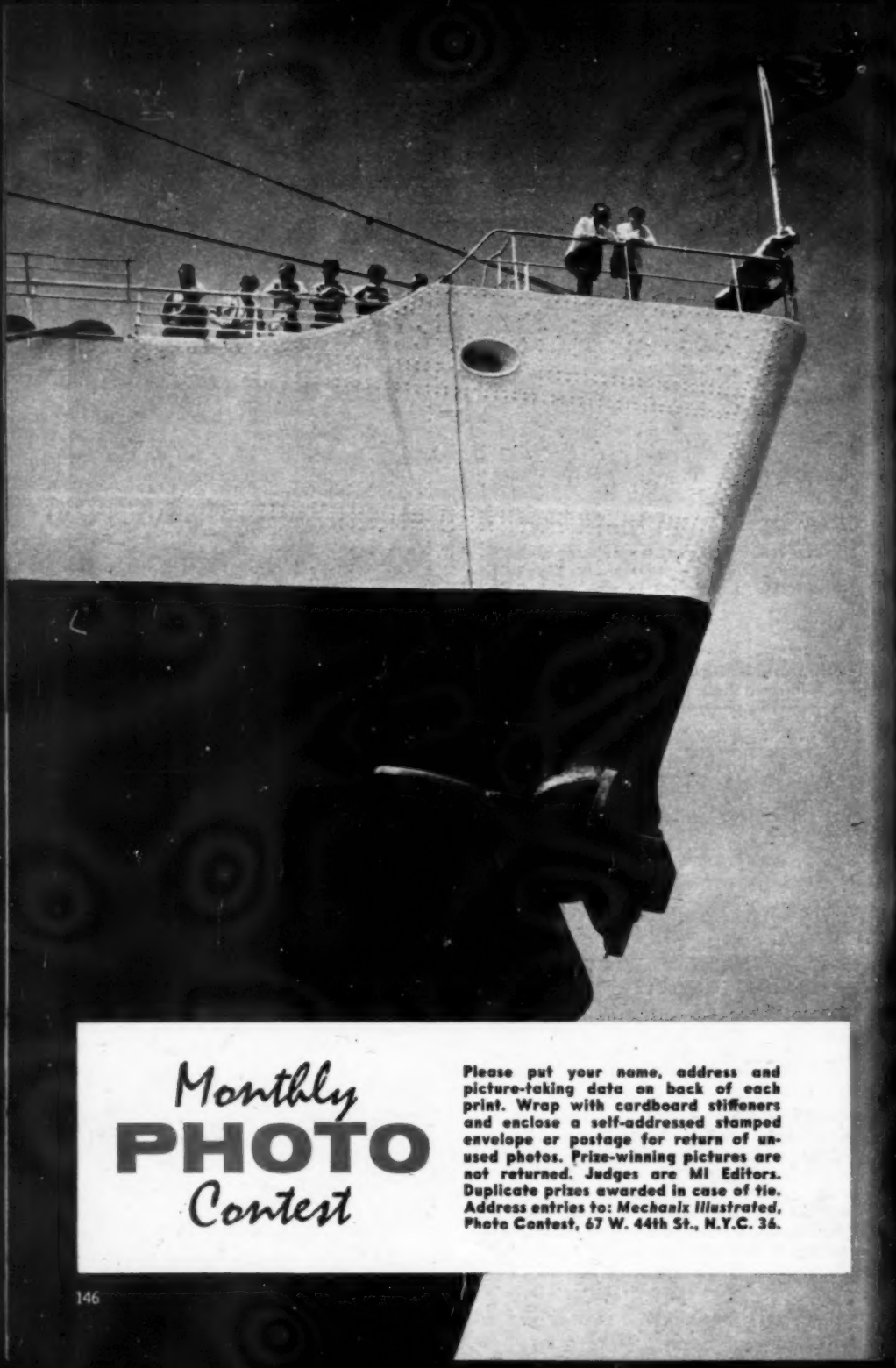
SHEET METAL up to ⅛x1¼ inch can be bent on the Mighty Midget. The round form block bends radii; the V-shaped one, angles.

EITHER OR BOTH of these new metal-forming tools may fill a definite need in your own workshop.

The Wireformer bends wire to any desired shape or pattern. It is ideal for making such useful gadgets as hat racks, peg-board hooks, brackets, mobiles, braces, etc.

The Mighty Midget forms curves and angles in sheet metal by pressure applied to forming blocks. •

MEMO SPIKE, made on the Wireformer from one length of wire, will double as a paper weight if mounted on a hardwood base.



Monthly PHOTO Contest

Please put your name, address and picture-taking data on back of each print. Wrap with cardboard stiffeners and enclose a self-addressed stamped envelope or postage for return of unused photos. Prize-winning pictures are not returned. Judges are MI Editors. Duplicate prizes awarded in case of tie. Address entries to: *Mechanix Illustrated*, Photo Contest, 67 W. 44th St., N.Y.C. 36.

$10 Award .....ST. JAMES CATHEDRAL
Peter Jackson of Southampton, England, 2nd Officer on the Queen Elizabeth, made this shot with a Zeiss Super Ikonta set for 1/50th at f-8.

$25 Award .....RESPITE FOR A QUEEN
Crew members eye New York from the bow of the docked Queen Mary. Jack Shipman of New York City used a 4x5 Crown Graphic: 1/200th at f-8.

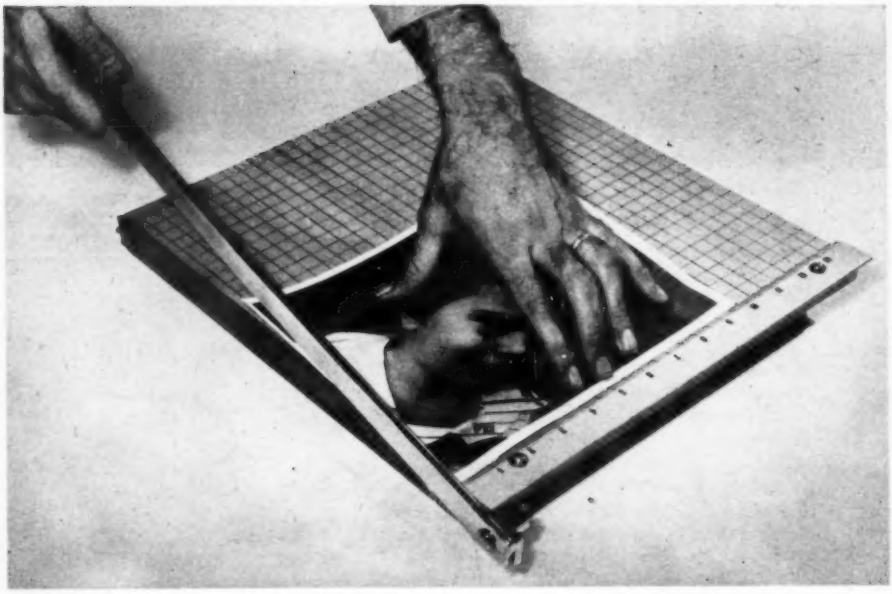
$10 Award .....PENNSYLVANIA TOTEMS
Steel and shadow combined to give Jack Schalek, Pittsburgh, Pa., this strong picture. Shot with a Verichrome-loaded Rolleiflex: 1/50th at f-16.

$10 Award ....SCREEN TEST
Undecided toddler was the target of Jack Goodson of Birmingham, Ala. He made his shot with a Rollei on Verichrome Pan. Speed setting was for 1/50th at f-8.

Photography Today

- *Make-It-Yourself Trimming Board*
- *Unusual Hypo and Print-Washing Tray*

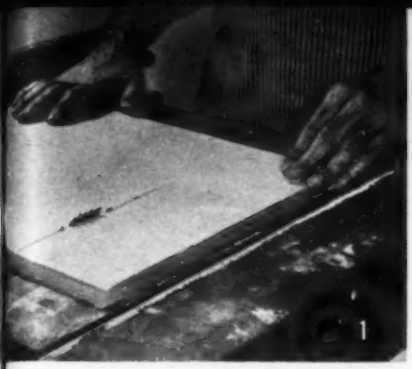
By Robert Brightman

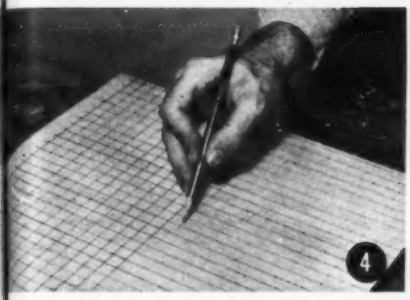


THIS month we present two rather unusual darkroom items which should appeal to the gadgetry in the soul of every photo fan. First is a make-it-yourself trimming board knife imported from Japan by the Spiratone Company of 135-06 Northern Boulevard, Flushing 54, New York. The hollowground, hardened steel knife and bed, big enough to trim 11 x 14-inch prints, sells for $3.79. Photographs show how it can be assembled into a very fine trimming board worth several times the price of the knife alone.

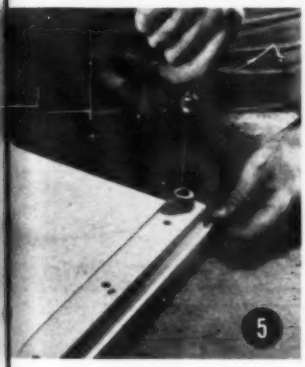
A word of caution. When you reach the final step of attaching the ruler you may come a cropper because rulers marked in inches from right to left are practically non-existent. We solved this difficulty by taking an ordinary ruler and cutting down to size. Then the existing numbers were sanded off and new ones applied. The numbers are decals, available in many sizes from art supply stores.

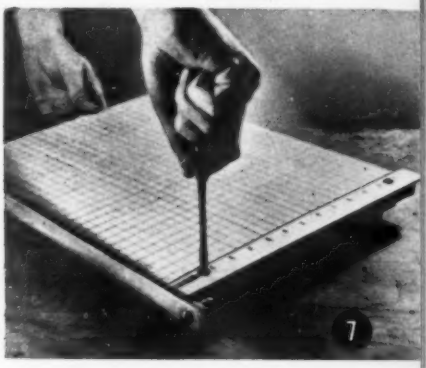
Hypo and Print Washing Tray. This one made by Yankee Photo Products can be a real time-saver. The 14x17 tray costs $6.75 and is made of white stain-resistant sty- [*Continued on page* 160]





1. Cut a board out of ¾ in. hardwood-surfaced plywood, 13 by 14 inches. 2. Fasten the knife in place, temporarily, to the long side of the board and draw a base line at an exact right angle to the knife bed. 3. From the base line scribe a series of half-inch lines across the board and again at right angles. 4. Fill in the lines with a sharp pencil. Seal the lines with three coats of brushing lacquer. 5. Cleats and rubber bumpers finish off the bottom. 6. Now permanently attach the knife to the edge of the board. 7. Ruler screwed to top finishes job.





TRAY, made of white styrene, in use as a conventional hypo tray. Center photo, how hypo is drained back into bottle by lowering built-in hose. To wash prints, hose is left detached. Yankee Photo Products, 3325 Union Pacific Avenue, Los Angeles 23, California.

Build It...

SHOE CABINET

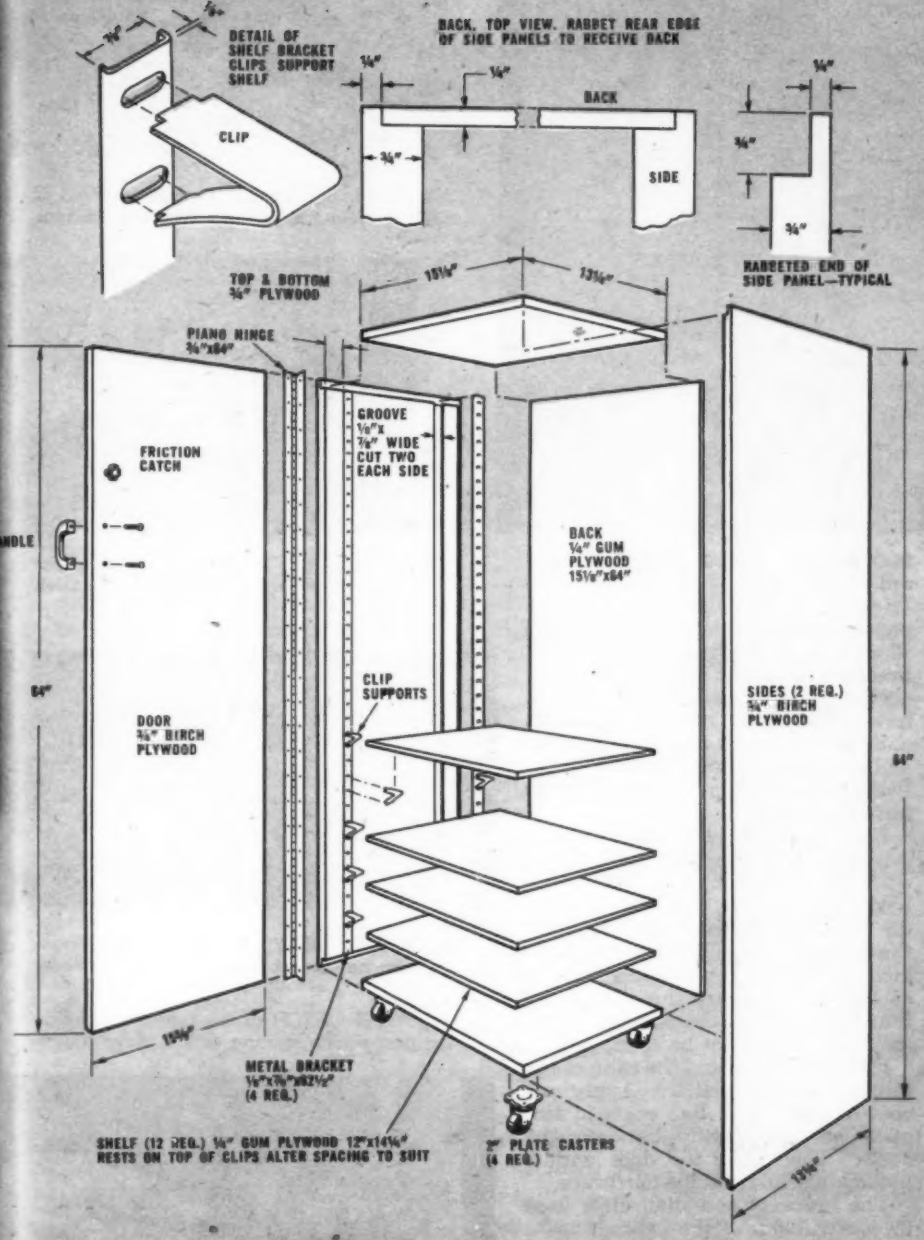
Why clutter the floors of your closets with shoes? You can store twenty-four pairs in this plywood cabinet.

THERE is no need to fumble around in the closet for your shoes if you store them in this attractive cabinet. The unit described will hold 24 pairs, but you may alter the size to fit your particular need. Four two-inch plate casters make the cabinet mobile so that it can be moved easily when cleaning house.

Designed primarily for use in a walk-in closet, the cabinet is trim and neat and will go well with modern furniture, making it possible to stand it in the corner of your bedroom if necessary.

Birch plywood, ¾-inch thick, is used throughout except for the back panel and the shelving, which are ¼-inch gum plywood. Adjustable shelf brackets and clips make it simple to install the shelving. A ¾-inch piano hinge supports the door and a friction catch keeps it shut.

Follow the diagram and cut all the plywood to size. Rabbet the ends and rear of the side


DETAIL OF SHELF BRACKET CLIPS SUPPORT SHELF
CLIP
BACK, TOP VIEW. RABBET REAR EDGE OF SIDE PANELS TO RECEIVE BACK
BACK
SIDE
RABBETED END OF SIDE PANEL—TYPICAL
TOP & BOTTOM ¾" PLYWOOD
PIANO HINGE ¾"x64"
GROOVE ⅛"x ⅞" WIDE CUT TWO EACH SIDE
FRICTION CATCH
HANDLE
BACK ¼" GUM PLYWOOD 15⅛"x64"
64"
CLIP SUPPORTS
DOOR ¾" BIRCH PLYWOOD
SIDES (2 REQ.) ¾" BIRCH PLYWOOD
METAL BRACKET ⅛"x⅞"x82½" (4 REQ.)
SHELF (12 REQ.) ¼" GUM PLYWOOD 12"x14¼" RESTS ON TOP OF CLIPS ALTER SPACING TO SUIT
2" PLATE CASTERS (4 REQ.)

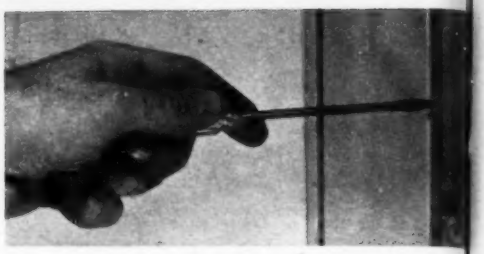
SLOTS in four vertical strips must be in same plane to make the shelves level.

panels, using a router or circular saw. The ⅞-inch grooves for the shelf brackets are made with a dado head on the circular saw. If you do not have a dado head, make two parallel cuts ⅞-inch apart and ⅛-inch deep and then make a series of cuts in between, chiseling out the pieces to form the groove.

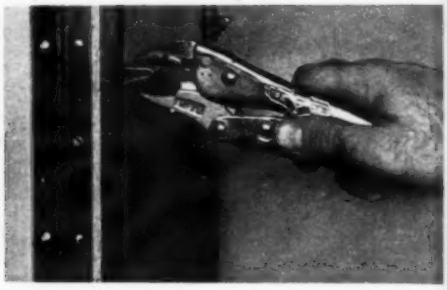
Next sand all edges and surfaces smooth and assemble the cabinet with two-inch finishing nails sunk below the surface. A little glue in the joints is recommended. Secure the vertical metal brackets with half-inch flathead screws, using five in each strip. Be sure the slots in all four strips are in the same plane or the shelves will not be level.

Finish the door and the cabinet before going any further. Apply one coat of sealer and two coats of lacquer, sanding lightly between the coats. Then hang the door with a piano hinge and add the hardware.

The brackets and shelf clips used in construction of the cabinet are a product of Reflector-Hardware Corp., 1400 N. 25th Ave., Melrose Park, Ill. •



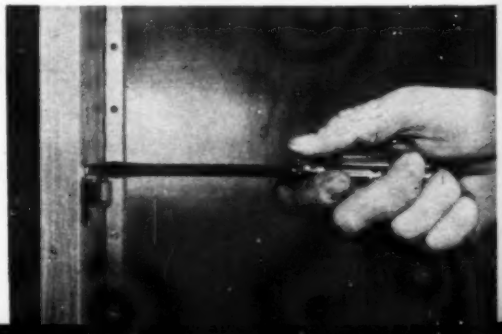
VERTICAL STRIPS are placed in grooves ⅛-inch deep, held with flathead screws.



SHELF CLIPS can be inserted by hand but vise-grip pliers make installation easier.

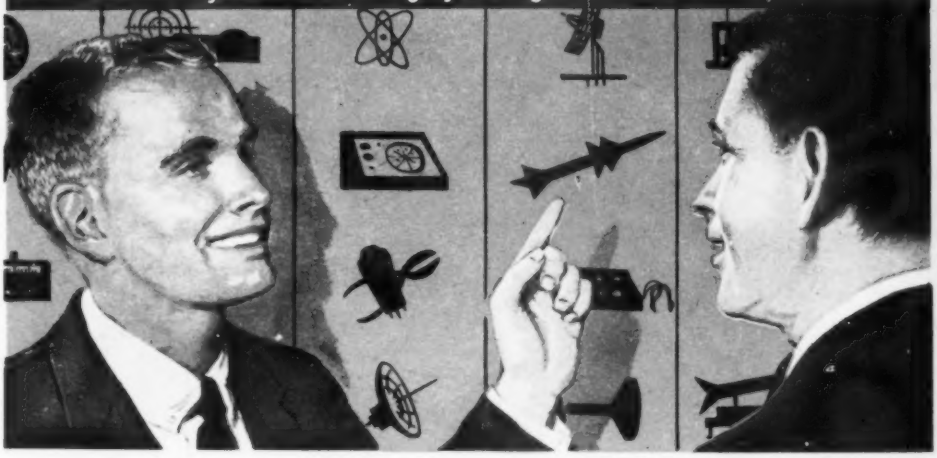
PLYWOOD SHELVING rests on clips. Spacing can be altered to suit your own needs.

FRICTION CATCH of the roller type holds the door which is hung with a piano hinge.



Now...choose your vocational training!

new "choose-it-yourself" training system guarantees CHOICE, not chance



Now you can pick the vocational training *you* like! Under the Army's new "CHOOSE-IT-YOURSELF" Vocational Training System, *you* choose your vocational training . . . and it's guaranteed *before* you enlist. Here's your opportunity to get valuable training and practical experience in the kind of work you *enjoy!*

Choose your vocational training from many interesting categories like these . . .

Radar & TV Repair	Military Police	Finance	Drafting & Cartography
Atomic Weapons	Printing	Construction	Metal Working
Surveying	Physical Medicine	Ballistic Missile Repair	Automotive Maintenance
Military Intelligence	Electronics	Combat Engineering	Machine Accounting

Here's how you "CHOOSE-IT-YOURSELF":

1. CHOOSE
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Choose the vocational training *you* like from the categories currently available. Your Army recruiter will give you all information and advice you need.

2. QUALIFY
. . . before enlistment!

Take aptitude and physical examinations . . . to be eligible, you must have a qualifying aptitude score and meet minimum physical requirements for your choice.

3. KNOW
. . . before enlistment!

If you qualify, you *know* you'll *get* the vocational training you like! Your choice is written into your future Army record—guaranteed *before* you enlist.

CHOOSE, QUALIFY and KNOW . . . without the slightest obligation to enlist! You *get* the Army vocational training you like—guaranteed in writing—or you *don't enlist!* This week, ask your local Army recruiter for complete details about the new Army system which lets *you* do the choosing.

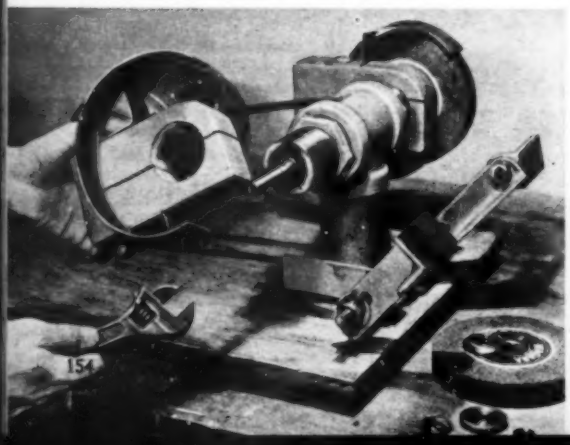
NEW "CHOOSE-IT-YOURSELF" VOCATIONAL TRAINING SYSTEM

U.S. ARMY

U-BUILD-IT GRINDER

Made of standard pipe fittings, this two-wheel home shop grinder can be built for under $20.

By Arthur Farwell



THE U-Build-It grinder is assembled almost entirely from standard pipe fittings. Both grinding wheels can be removed or attached in a few seconds. No lathe work is required to seat the ball-bearings. The only machinist's work you will encounter will be turning the spindle's ends to bearing diameters and threading them.

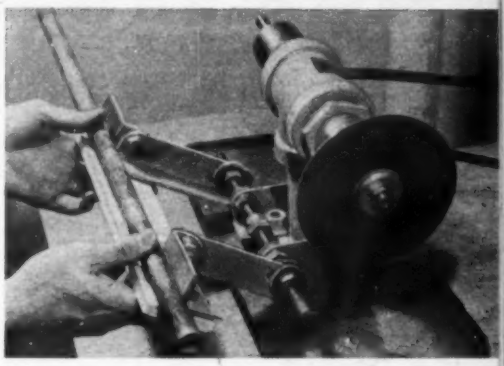
CIRCLE GUARDS and pinch-lock blocks fit over spindle couplings.

This piece is turned from a 16-inch length of ⅞-inch diameter steel.

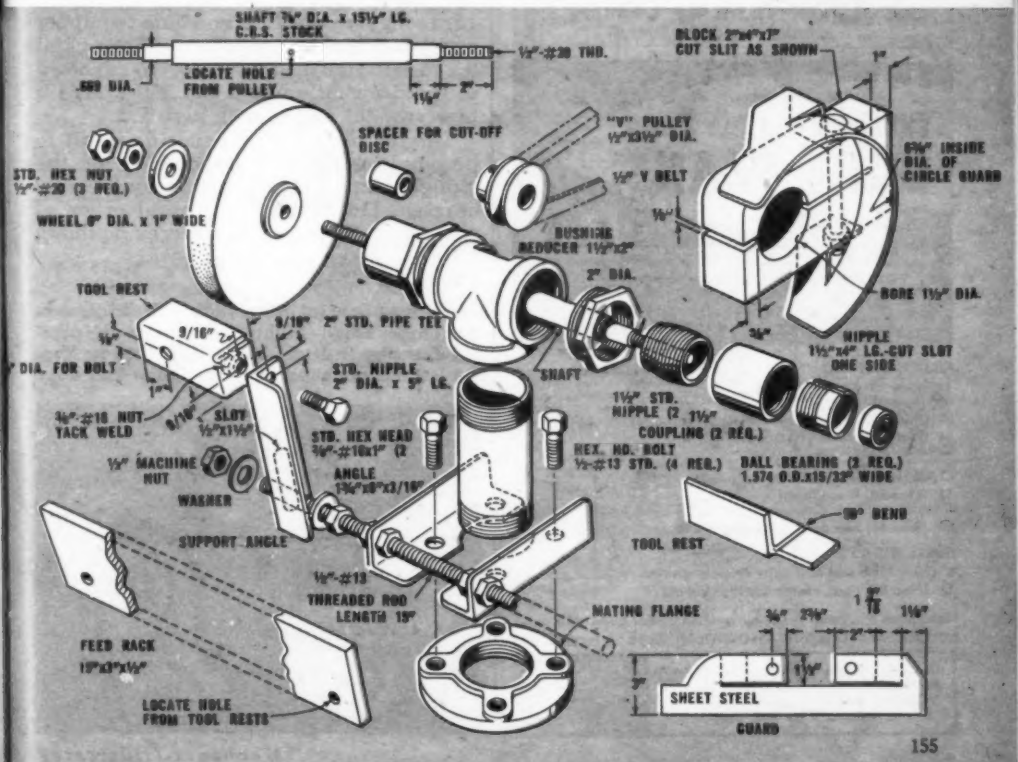
The advantages of this machine are twofold. First, its double-shaft, ⅓ hp, 1725 rpm motor can be used to drive a second power tool. Second, the grinder's tool rests can be joined into a single action feed bracket which holds stock being fed to the cutting disk.

The tools you will need include a vise large enough to hold a standard 2-inch pipe tee, a drill press, an 18-inch pipe wrench, a three-cornered scraper (made from an old file), a ¼-inch lathe tool bit, a ½-inch, No. 20 threading die and an expansion-type wood-boring bit which will drill a $2\frac{3}{16}$-inch diameter hole.

Materials. The 2-inch tee fitting which houses [*Continued on page* 161]



TOOL RESTS can work independently or together as a bracket for holding stock firmly while it is fed into a cutting disk.



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16' (Plan 55) Deluxe runabout. Double cockpits seat 6.

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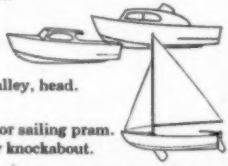

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Build Barnaby

[*Continued from page* 121]

in for use with one 35-hp Bigtwin Evinrude.

You will stand a lot on the deck, so screw and glue all joints tightly. The beam exposed to the cabin, or the "dash panel," should be mahogany. The deck is cut out of the bottom panel blank as shown in the drawing on page 113. Saw this out and repeat for the other half of the deck. Pencil the hatch opening under the deck panel and cut. Use a fairing stick (page 113) to see that the deck panel will touch each beam in a smooth curve. Use half-inch Philippine mahogany for decking. This stock is duty-free and is quite low in price. It is used extensively on this little cruiser for a big cruiser look. Four of these planks form the side decks, as per drawing on page 119.

Before starting the cabin, trim away about three inches of front deck hanging over the dash panel into a sweeping curve to where the cabin side will meet it. Cut the cabin sides out of mahogany blanks (drawing on page 119) and glue the upper and lower halves together. The cockpit floor is quarter-inch plywood, cut as shown in the drawing on page 121. If you're a heavyweight use ⅜-inch plywood.

The top plate, which bends down aft to become a railing, is responsible for the straight run. The cabin cutaway drawing on page 116 shows the general order of assembly. Strength is gained by doubling

[*Continued on page* 164]

TWO members of MI's staff, Bob Brightman and Jack Smith (right), take turns in piloting Barnaby in New York's busy harbor. Yep, we left our yachting uniforms home that day!

A Skater's Sail

[*Continued from page* 128]

along pre-drawn pattern lines (but leave enough border to reinforce the mid-seam and edges). All corners should be double thickness to prevent tearing. All edges and the mid-seam must be reinforced with heavy non-stretching tape. Set the 3x10-inch plastic windows just back of the mast, one above and one below the boom.

Spars made in two sections are easier to tote. Use straight-grained spruce for these. The illustrated sail has metal spars made from TV antenna tubing which is also very satisfactory.

Wooden spars should have a 1½-inch middle diameter and taper to one inch at the ends. The mast should be four inches longer than the width of the sail, with a small hole bored near each end. The boom should be 12 inches longer than the sail, with a small hole three inches from the back end. Through these holes, and the grommets of the sail, pass the lashings that draw the sail taut.

Jointed spars use a ferrule of 18-gauge brass about a foot long. Attach one spar section in the ferrule and leave the other free to be inserted when rigging the sail.

This sail requires front and tail bows, the front to be made in two sections. Rattan is the best wood for these. The bows, which are varnished, should be one inch at their center diameters and taper to a half-inch at the ends.

To rig the sail, lay it flat with the jib pocket up. Place the mast on the sail and fasten each end with the 15-inch line. Pull the sail taut and insert the front end of the boom in the jib pocket. Then use the lashing to pull the sail tight. Lash the spars securely where they cross.

Now let's go skating. To start, lay your sail on the ice, spars up. Pick it up so the boom rests on your shoulder and grasp the mast at a comfortable spot below the boom. Stand with the sail shielding you from the wind and point it about 45° off the direction from which the wind is blowing. Lean into the wind and you'll start sailing.

To stop, grasp the mast above your head with your outside hand and swing the sail over your head and parallel with the ice. To sail down wind, use a series of short tacks. •

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Safety Starts At Home

[*Continued from page* 136]

on any given road under any particular set of conditions. On that hot day in the South, engines ran coolest when drivers allowed their powerful cars to roll easily. Those who chose to get out of line speedwise just ran into trouble.

Sometimes cars will run 25 mph as a group just because it is unsafe to go faster. Comes the fellow who violates this unwritten law and he quickly comes to grief with a skid or inability to stop when a traffic light looms up. We'll never know how much bad steering and tire wear come from skids. More and more cases are found where rear tire wear is due to a sprung rear axle.

Safety isn't just something for the law abiding, or the fearful, or for those who have a high sense of regard for their own necks. It saves the car as well.

Is that hood securely locked? Are both headlights working and do they drop their beams properly for passing? Does the brake pedal hold when you press your foot down on it for several minutes? Have the front wheel bearings been inspected and lubricated within the last six months?

How about the drive belt for the power steering pump? Are the shock absorbers in good condition? If not, the car will bob. That means dangerous wandering on the open road. Is there any leakage of gasoline around the line, pump and filter? Is the exhaust system in good condition? Has that leaky muffler been replaced?

A car was parked on a pine-needle covered road leading down to a mountain lake. An hour later the car had rolled into the water even though its rear wheels were locked tight by the parking brake. It just skidded down on the smooth leaves! Safe parking protects your car. If there is anything unusual about the terrain it pays to be doubly sure the car will stay put, even if you have to block a wheel.

Sound the horn when approaching the crest of a hill if there is no view over the brow. This will warn an approaching driver who may be over on the wrong side of the road illegally overtaking another car. But to be doubly safe *slow down*. Now let's see what this does by way of helping the car.

Starting the descent at lower speed enables the engine to serve as a compression brake. This will save brake lining. Because the engine is not turning over so fast there will be less oil pumping to the combustion chambers. This saves oil and plug fouling. When plugs fail to fire, an unburned mixture combined with oil pumping gums up the valves.

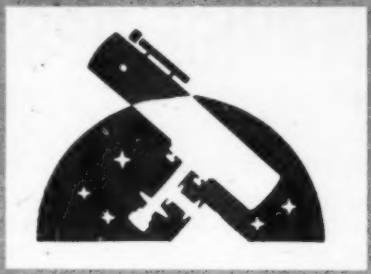
When you take your car to the service station for a dose of safety servicing you set into motion savings on various related parts. Take readjustment of the throttle control linkage of the automatic transmission in order to correct for faulty shift points. You naturally want to make sure the transmission will respond faithfully when you need down-shifting for fast and safe overtaking of other cars. But in the bargain you get smoother action of the transmission. This is the same as saying that the universal joints will be spared a lot of extra wear.

Perhaps you have taken off the wheels to check brake lining wear. It just looks like following a simple, sensible rule in car care but actually you are assuring yourself that you won't be allowing rivets or bare brake shoes to score the drums. Even a well-conducted readjustment of the brake shoes will be insurance against warping the drums. If the brakes work properly when you first apply them it won't be necessary to jam on the pedal for a panic stop.

I heard of one motorist who kept postponing having the headlights re-aimed. The lights threw a beam a little too high for a clear picture of the road just ahead of the car, especially when the car was loaded. Came a vacation trip and he drove too fast over a rough piece of roadway which he didn't notice because of the faulty lighting. Braking, as the wheels went into a chuck hole, broke a rear spring. He damaged a spring because the headlights needed adjusting!

Front-end alignment affects tire wear. How about rear-end alignment? Excessive wear on one side of a rear tire led one motorist to discover that the rear axle housing was sprung.

Keep an eye and an ear cocked for the sights and sounds of trouble. You know—"An ounce of prevention. . ." •



The Amateur Telescope Maker's Page

Gleanings

The most fascinating object to observe in the sky is the moon. Low power is sufficient, about 50 times will reveal a wealth of detail that will keep you busy for an entire evening, drinking in the awe-inspiring beauty of our own true satellite.

Don't watch the full moon. The glare will actually make you moon-blind. When you "return" to look at the earthly landscape everything will have a decidedly brown cast. Don't be alarmed, your vision will stay this way for a minute or two and then return to normal.

The best view of the moon is when it is crescent-shaped and the most interesting part of its landscape is that area between the light and dark part which astronomers call the terminator. It is the area of sunrise on the moon. Its towering peaks and huge craters are thrown into vivid relief by the hot, strong rays of the sun. There is no air or dust on the moon to temper the sun's rays, consequently, shadows are heavy and black.

* * *

One problem that some TN's encounter (we, too) is seizure of the mirror and the tool. This distressing phenomenon occurs when the mirror is left on top of the tool for a goodly time, such as when answering the phone or going out to see what the neighbor is up to. When you come back to resume your work you may find that you cannot budge the mirror from the tool. What has happened is that the water has evaporated and the air pressure is now doing its dirty job to "cement" the two disks together. Don't try to force them apart. And don't try to wedge them apart by means of a screwdriver. Fill up a basin with warm water and let the two rascals in their embrace cool off a bit. After about a half-hour, walk in with a purposeful mien, grasp a disk in each hand. You should be able to separate them with a sort of sliding, screwing motion. Again, don't use force. If all else fails try alternate baths of warm, not hot, and cold water.

* * *

Embryo telescope fans, if you have been thinking of joining that august body of hobbyists called TN's (Telescope Nuts), here is a date to shoot for. There will be an inspiring view of a solar eclipse (Weather Bureau willing) visible throughout most of the United States on October 2nd. It takes about six months to design, grind and build a good six-inch telescope, so—what are you-all waiting for!

You can get a fine set of plans for building a telescope from our parent company, Fawcett Publications, Inc., at Greenwich, Connecticut. Ask for Mechanix Illustrated Plan No. 8, Ten-Dollar Telescope and enclose two dollars. The plans consist of two large sheets, each well worth the two bucks. In fact, if you think that they aren't worth the dough, send them back to us and we will personally shell out the money pronto.

* * *

The mounting is too often too light. In fact more than half of the telescope mountings we have seen are subject to tremblelitis, a disease that is also said

[*Continued on page* 190]

Photography Today

[*Continued from page* 148]

rene with a glossy inner surface. When used as a hypo bath, the built-in hose is left attached to the clip under the lip of the tray. To drain the hypo, the hose is removed from its clip and inserted in the mouth of a gallon hypo jug, as shown. To wash prints the hose is also detached from the clip and allowed to remain at the bottom of the sink as shown in the photograph. This is a fast print washing method, as hypo, being heavier than water, will drain to the bottom of the tray, rather than having to overflow the tray as in a conventional washer.

New Catalog. Shutter bugs who do their shopping by mail should be interested in Sears, Roebuck's 1959 camera catalog and photographic reference guide. While most of the catalog is devoted to the photographic equipment that Sears sells, many pages in the book are devoted to developing, printing, enlarging and information on how to use filters and flashbulbs. Worth writing for. Send a card to Sears, Roebuck and Company, 925 S. Homan Ave., Chicago 7, Illinois, for a free copy.

Self-Adhesive Photo Mounts. This business of mounting prints in your album, a job which always seems to be postponed, should be a pleasure with Avery self-adhesive photo tabs. They come in a plastic dispenser. Each tab is a half-inch square. The unusual thing about these tabs is that they are sticky on both sides. To use, a tab is mounted on each corner of the photo to be installed in the album. Then a protective paper is peeled off the tab which exposes another tacky surface. The print is then located over the place in the album page where you want to mount it and then pressed into position. A roll of 200 tabs costs 69 cents. They are made by the Avery Adhesive Label Corp., 1616 South California Avenue, Monrovia, California. •

Using a battery-powered outboard motor, this handsome model really performs beautifully. Construction is mostly of balsa, with plywood added where extra strength is required. For your copy of these complete, full size plans, remit 50 cents to MECHANIX ILLUSTRATED Plans Service, Fawcett Bldg., Greenwich, Conn. Please specify Plan No. 420.

SERVICE TIPS
from Detroit

FORD now recommends a new gearshift rod adjusting sleeve to correct balky shifting, gear breakage and noise on 1957-58 models with standard transmission or overdrive.

You can now order roller bearings for the rear wheels of your Chevrolet (1955 models to date) in place of the standard type. Be sure to stress the year model because parts numbers differ for the 1955-56 and 1957-58 groups.

If, after the usual checks, your Chrysler or Imperial persists in hesitating during acceleration, you can conclude the mixture is too lean and that a change in the step-up wires, rods or power-jet rods is called for, depending on the models involved. Dealers have the necessary parts.

Cadillac now uses a 9-amp fuse for its radios instead of the 7½-amp fuse on the 1958 cars. The higher amp fuse allows the radio to carry the higher current needed when operating cold.

Owners of the 1958 Ford with the 332-cubic-inch engine may run into trouble when using a timing light to check ignition; those yellow marks on the vibration damper are not timing marks.

Chevrolet points out that its current recommendation not to drain and refill transmission of its Powerglide and Turboglide jobs does not apply to the 1950 to 1957 passenger cars or the 1958 trucks.

Mercury owners will lengthen their tire life if the front wheel toe-in is changed to the $\frac{3}{16}$- to $\frac{5}{16}$-inch range from the original $\frac{1}{16}$- to $\frac{3}{16}$-inch limits.

Owners of 1956-57 Pontiacs who have noticed a clicking noise in their shifting mechanism when the Hydra-Matic shifts from second to third are advised to consider a reduction in the end-play limits from .004-.018 to .004-.013 inch.

One-Handle Faucet

[*Continued from page* 144]

thickness or less. The spray attachment can be mounted either on a counter alongside the basin or hung on a wall bracket. Drilling into the basin is not necessary.

The first step in installation is removal of the existing waste pipe. Hot and cold water lines are then shut off and pipes leading to existing faucets are disconnected. Disconnection may be at a union or at a coupling nut just under the faucet. Now, using the basin wrench, remove the faucets.

To remove a faucet of fairly modern design it is usually necessary to first take off the handle. The screw holding the handle may be under a knurled cap which can be unscrewed or under a snap button which can be pried off. Remove the cover next. Some covers lift off, others unscrew. Now remove the nut that attaches the faucet to the sink. Spouts that are separate from the tap handles are usually attached with a nut underneath the basin.

To install the spray, drill a one-inch hole in the counter beside the basin. Place the escutcheon into which the spray fits in the drilled hole and fasten it by means of a nut washer. Otherwise, you need only provide a clip on the wall to hold the spray head.

To install the spray, drill a one-inch spout by unscrewing and by removing the escutcheon and spout nut. The spout may then be lifted off. Unscrew the escutcheon and handle nut and slip them up over the handle.

You will find inside threads at that point on the fixture that connects to the water supply.

Making a proper solder connection on a copper water pipe requires an inside-thread-to-copper adapter. Spread pipe joint compound on the adapter's threads before screwing it into place. Use one pipe wrench to hold the assembly and another to turn the fitting.

Before soldering, clean all surfaces with steel wool, then coat them with soldering paste before slipping pipe and fitting together. Heat this joint with a blowtorch. When it is hot enough, the joint will draw in the melted solder as the solder is touched to it.

If your existing plumbing pipes are of

[*Continued on page* 190]

U-Build-It Grinder

[*Continued from page* 155]

the spindle pulley is simply a cast-iron steam fitting with a wide lip and a good heft.

All the standard 1½-inch pipe couplings are of steel, threaded their full lengths and cylindrically straight. The base flange is one of a "flange-union" pair, the bottom of which is machined. For the spindle, purchase at least 18 inches of ⅞-inch stock so as to have enough to make the arbor spacer.

The ball-bearings (New Departure or MRC) can be obtained at small cost from auto wreckers. The O.D. of these bearings makes an easy push-fit into the I.D. of standard 1½-inch pipe.

The die-cast V pulley for the spindle must have a hub which may be reamed or bored to a ⅞-inch diameter. The 15-inch length of ½-inch, No. 13 threaded rod is cut from stock available at any good hardware store.

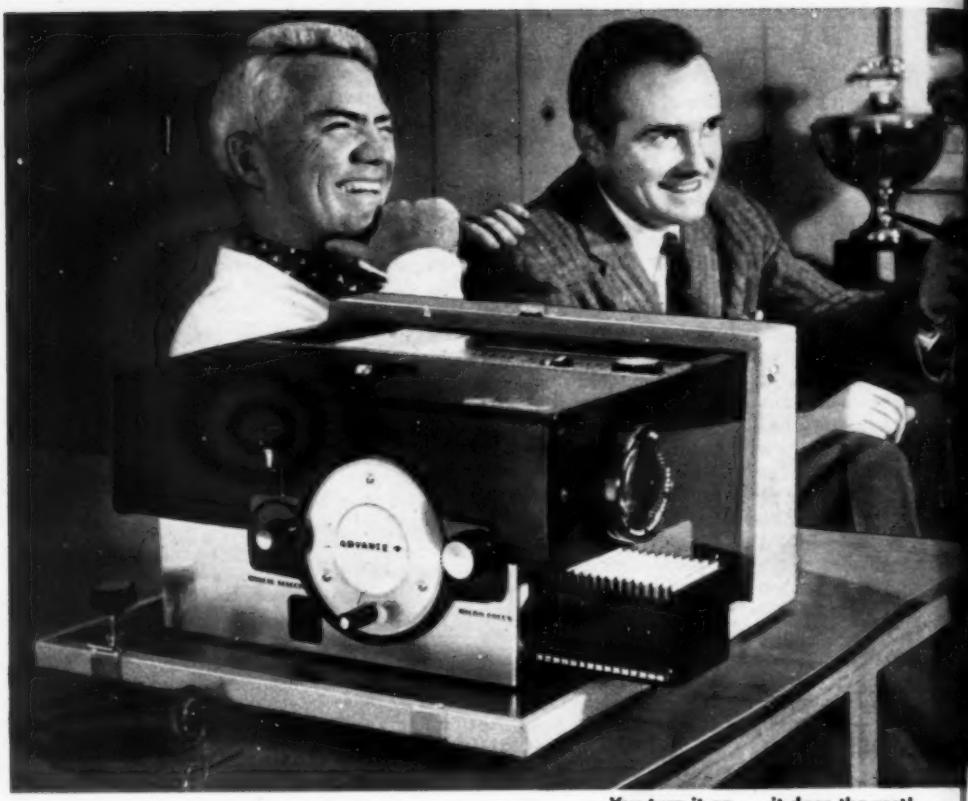
The 6-inch-diameter by 1-inch-wide grinding wheels can be of any reliable make. Get one for rough and one for finish grinding. Their holding washers should be of the solid turned type, not the stamped variety, if you would have the wheels run as true as possible; this also pertains to the ½-inch, No. 20 wheel nuts as well.

Processing the parts for assembly. First, cut and knock out the belt opening in the big tee leaving access to the pulley set screw.

Note that the couplings are wrenched up very close with only $\frac{5}{16}$ inch between them and the bushing reducers. This is done by cutting four equally spaced slits with a hack saw parallel to the axis of the short nipples and to a depth of ⅛ inch beyond the peak or center of the nipple. The couplings are then threaded over the slitted end of the nipples.

To assemble the bearings a ⅛-inch-wide slit is cut parallel to the axis of each end of its threaded 1½-inch pipe retaining sleeve. These bearing holder sleeves are made by sawing in half a 4-inch-long, 1½-inch pipe nipple. This leaves an inch of unthreaded pipe for wrenching margin. Later this margin is sawed off flush to the coupling face after several test assemblies

[*Continued on page* 191]



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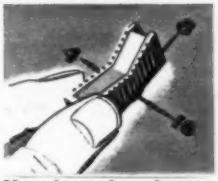

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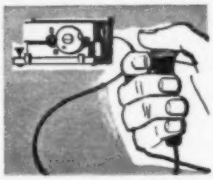
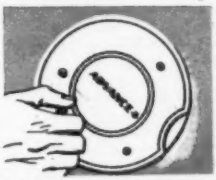
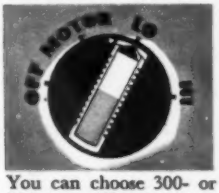


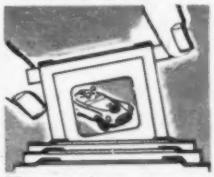
You can change slides by remote control up to 12 feet from projector.



Forward or backward change by control wheel; pushbutton change, too.



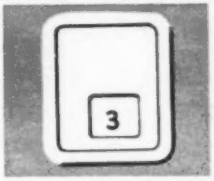
You can choose 300- or 500-watt illumination. Just flick the switch.



You can show any popular slide size. New steel guards protect your slides.

Your slides are treated with temperature-controlled air to stay in focus.

You can edit slides while tray is in projector—remove one slide, replace it.

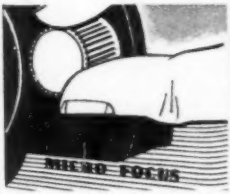


You arrange and change slide order by checking index window number.

You can point out slide details on screen with the built-in arrow pointer.

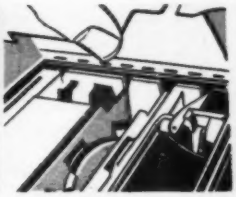
changes color slides for you! big-as-life... protects them, too!

You get sharp, brilliant screen images with the 5-inch, *f*/2.8 Ektanar Lens.



You focus your slides smoothly, accurately with the micro-focus knob.

You can preview your slides on the built-in screen of projector's self-cover.



You can remove optical system quickly for cleaning—lamp is easy to change.

See Kodak's "The Ed Sullivan Show" and "The Adventures of Ozzie and Harriet"

Build Barnaby

[*Continued from page* 156]

the roof side plate and extending it to bend down to the aft deck as a handrail. This bend also takes some muscle work. Cut all window frames and sash from scrap mahogany.

From here on the task is one of finishing. A smart move now is to use a good wood preservative. It's insurance against fungus that forms when water soaks, then dries out in the keel when you have the boat covered. Actually, this little hull is completely accessible and you can easily reach every damp spot with a sponge. Our boat is always in the yard under cover, or in the garage in really bad weather, not soaking at some berth. That's the pleasure of trailing.

Our plans for the boat this summer call for a polyethyelene cover over the cockpit with air mattresses on the floor for men folks. The gals can have the cabin. Cabin has no head but disposable units are available now. Cooking is done on a cylinder gas unit mounted on a hinged shelf in the cockpit. Nooks and corners for gear are everywhere in this short 16-footer, the real deal being the cabin.

All mahogany was spar-varnished with about six coats. Hull received three coats of white outdoor enamel. Do not paint your bottom color up along the chine to stem. This is a runabout technique. For your "cruiser" look, break it off over the chine and keep it level with water line, or a few inches above. Use masking tape. All deck hardware as well as running lights, are from the fashionable new Vollrath Viking line. We carry this baby on a Pacemaker 900 trailer, with Fulton winch, two-way ratchet. This rig has a tilt feature which helps you load or unload the boat.

All in all, *Barnaby* is a snappy little job that gave us loads of pleasure last year. We're all pepped up looking forward to another summer of boating. No more traffic jams, cops, flies, gasoline fumes and traffic lights. We're really starting to live—and you too can live it up by starting to build *Barnaby*. •

BILL OF MATERIALS

MAHOGANY

SIZE	USE	AMOUNT
¾"x2"x18'	Chines	2
¾"x1¼"x12'	Bottom Stringers	4
¾"x1¼"x9'	Bottom Stringers	2
¾"x18"x6'	Transom	1
¾"x10"x4'	Transom	1
¾"x1½"x18'	Normal Sheer Clamps	2
¾"x¾"x10'	Raised Sheer Clamps	2
1"x7"x6'	Cabin Dash Panel	1
½"x8"x9'	Side Decking	3
½"x8"x6'	Side Decking	2
½"x12"x8'	Cabin Walls and Fins	4
½"x12"x10'	Cabin Walls and Fins	1
½"x12"x6'	Cabin Walls and Fins	1
½"x12"x48"	Hatch Cover	1
¾"x2"x48"	Door Jambs	2
¾"x¾x"36"	Grab Rails	2
½"x12"x5'	Seat Back	1
½"x1¼"x8'	Gunwale Trim (Aft of Sta. 4)	2
½"x1"x10'	Gunwale Trim	2
½"x12'	Quarter-Round Cabin-to-Deck Molding	2

WHITE OAK

1"x4"x6'	Rear Seat Rail	1
¾"x2½"x24'	Frame Sides	1
¾"x3"x20'	Frame Bottoms	1
¼"x6"x18'	Frame Bottoms	1
¾"x3"x9'	Transom Framing	1
1"x1¼"x18'	Keel	1
1⅛"x4"x13'	Keelson	1
2"x4"x74"	Stem	1
2"x5"x18"	Stem	1
¾"x6"x7'	Gussets (Frames 1, 2, 3)	1

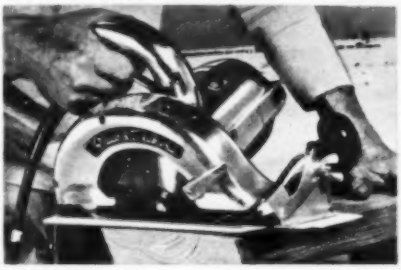
EXTERIOR FIR PLYWOOD

¼"x4'x8'	Floor, Bunks	2
⅜"x4'x16'	Bottom and Deck Planking	2
⅜"x4'x8'	Rear Sections of Side Planking	1
⅜"x4'x10'	Front Sections of Side Planking	1
¼"x30"x30"	Gussets (Frames 1, 2, 3)	1
⅛"x32"x6'–6"	Cabin Roof (Ext. Flush Door Stock)	2

SPRUCE OR FIR

¾"x6"x4'	Center Roof Plank	1
¾"x12"x64"	Rear Seat	1
1"x2"x24'	Bunk Frames	1
1"x2"x6'	Floor Battens	2
½"x1"x12'	Side Molding	2
1"x6"x9'	Deck Beams	1
1"x3"x6'	Hatch Carlings	1

BLACK & DECKER SAWS ARE PROVED ON AMERICA'S TOUGHEST JOBS!



- CONTROL IN THE WOOD . . . light, balanced, easy to adjust, accurate guide.
- BLADE WON'T QUIT . . . no clutches or overload gimmicks necessary to protect the powerful B&D-built motor.
- SAFETY . . . totally-enclosed, guarded blade; automatic release switch. UL-listed.
- ECONOMY . . . fast, accurate cutting produces more and better work.
- STRENGTH . . . with new, heat-treated reinforced brackets and shoes.

Black & Decker Saws are on the job at America's top 10 construction projects—From the new Air Force Academy to the Cape Canaveral Missile Center.

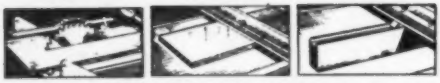
The same tough dependability, prized on big construction jobs, makes a Black & Decker Saw *your* best choice—whether you use it on the job or around your home. You'll find it turns out work faster, with far less maintenance and easier handling. Choose from five models—6½" to 9¼" blade sizes. Check Black & Decker's Chain Saw attachment, and the Heavy-Duty Saw Table that triples your Saw's usefulness. Ask your B&D dealer for a demonstration next chance you get.

Black & Decker®

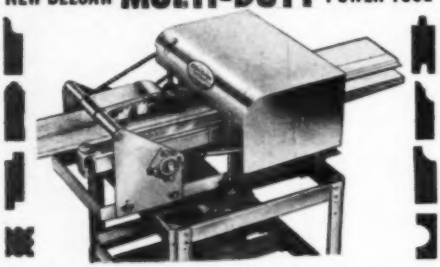
Look Under "TOOLS-ELECTRIC" in Yellow Pages

Towson 4, Md.
World's Largest Maker of Electric Tools

SAWS PLANES MOLDS



NEW BELSAW **MULTI-DUTY** POWER TOOL



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RIP... PLANE... MOLD...

separately or all at once by **power-feed** ... with a one horsepower motor. Use 3 to 5 HP for high speed commercial output.

FULLY SAFE-GUARDED, anti-kickback design.

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3 East 54th Street • New York 22, New York

Golden Hammer Awards

[*Continued from page* 130]

Darrel L. Olson, Keokuk, Iowa; J. M. Pender, Monroe, La.; Gerald F. Allen, Denver, Col.; Wilbur T. Bane, Coal Center, Pa.; DeWitt B. Blossom, New Hyde Park, L. I.; Paul Bartels, Baltimore, Md.; Jack Eastman, Manhattan Beach, Calif.; Frank Gilbert, Pulaski, Va.; Col. P. McClain and Robert Mercereau, Miami, Fla.; Kenneth Leutholtz, Birds Landing, Calif.; Arthur Volz, Jr., South Bend, Ind.; Francis S. Kalinowski, Syracuse, N. Y.; Dr. F. W. Widmer, Richmond, Va.; J. Scheidl, Pensacola, Fla.; Larry Mozzar, Brooklyn, N. Y.; Howard Hargrove, Lawrence, Kan.; Robert S. Bickford, Oshkosh, Wis.; Jack Connell, Toronto, Can.; Preston Wakeland, Midlothian, Ill.; Edward E. Berglund, Larned, Kan.; Robert J. Boyle, Everett, Wash.; S. L. Tabb, M.D., Silver Spring, Md.; Walter T. Rebaic, Pittsburgh, Pa.; Walt Farnworth, Pawtucket, R. I.; Joseph G. A. Menard, Norwalk, Calif.; Ron Sandberg, Abingdon, Ill.; Harold Bramley, Alberta, Can.; Jim Schuhay, Webster Groves, Mo.; Warren H. Kibler, Warsaw, N. Y.

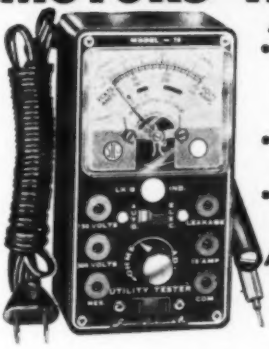
The following craftsmen have been awarded CERTIFICATES OF MERIT for their projects:

Richard J. Rees, Crawfordsville, Ind.; Howard G. Bunse, Alberta, Can.; Phil Jubinski, Old Forge, Pa.; Robert Wagner, Normal, Ill.; Joe Brassal, Jr., Lockport, Ill.; George M. Bachand, Springfield, Mass.; George McKain, Glasgow, Scotland; Philip M. Wilson, Edinburgh, Scotland; Roy H. Krout, Granada Hills, Calif.; Jerry Shelton, Milan, Ind.; Robert G. Hughes, Hicksville, N. Y.; T. F. Tolar, Miami, Fla.; Ira Leasure, Hermine, Pa.; Cecil C. Burright, Billings, Mont.; Z. J. Gilbert, Macon, Ga.; Gerald S. Kuphoaski, Buffalo, N. Y.; Donald E. Nogy, Cooksville, Ont., Can.; John Nacheau, Fort Kent, Me.; Arthur Ashton, Ludlow, Mass.; Pvt. Bernard D. Bodner, APO 81, New York, N. Y.; C. A. Gielish, Los Angeles, Calif.; Richard W. Franclemont, Buffalo, N. Y.; Norman L. Goldsmith, Memphis, Tenn.; Bruce Skarstadeabin, St. Paul, Minn.; Matk Ainsworth, Northants, Eng.; Homer L. Renaker, Mt. Sterling, Ill.; Wallace Mickalewicz, Hamtramck, Mich.; Patrick S. Graham, Quebec, Can.; Tony Jackson, Billings, Mont.; Douglas F. Watson, White River, Can.; D. W. Gray, Bangor, Me.; Les Porter, Victoria, Africa; Virgil Hawkins, Torrance, Calif.; John Delaurier, Manitoba, Can.; Jerry Grenier, Sr., Saco, Me.; A. Kryqsveld, South Buenaby, Can.; Charles W. Baldwin, Jr., Front Royal, Va.; John H. Schockel, Pitman, N. J.; Edward Mrozek, Locust Valley, N. Y.; Edward P. Day, Philadelphia, Pa.; Bernard Pender, Miami, Fla.; Wilber Ebenhart, St. Louis, Mo.; George E. Johnson, Eau Claire, Wis.; Ray Wellman, Beaumont, Tex.; P. O. Ayers, Ionia, Mich.; William Stamm, S. Ozone Park, N. Y.; Alain Brisson, Ont., Can.; Robert Datson, Energy, Ill.; Robert E. Lee, Inkster, Mich.; Ken Alley, Salinas, Calif.; Jon Reynolds, Clemmons, N. C.; John Thomas, Newburgh, N. Y.; Willem P. Hann, Newport News, Va.; Chester Snyr, Romulus, Mich.; Stewart Personick, Bronx, N. Y.; Herb Cross, Smith's Creek, Mich.; Robert W. Brooks, Huntingdon, Pa.; W. F. Baylet, Orpington, Eng.; Edward Dacke, Kingsville, Tex.; A/1c Douglas A. Dahlke, Mather AFB, Calif.; Wm. T. Whale, Tampa, Fla.; Robert Shull, Jr., Uhrichsville, Ohio; H. J. Breaden, Yukon, Can.; Richard J. Fiddeu, Wilmington, Calif.; Marvin Tomsick, Wahoo, Neb., S. Machrone, Roselle, N. J.; E. A. Gruber, Piers, Minn.

Watch for names of more winners next month.

Superior's New Model 70 UTILITY TESTER®

FOR REPAIRING ALL ELECTRICAL APPLIANCES MOTORS • AUTOMOBILES • TV TUBES



As an electrical trouble shooter the Model 70:

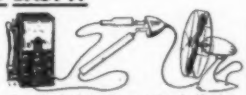
- Will test Toasters, Irons, Broilers, Heating Pads, Clocks, Fans, Vacuum Cleaners, Refrigerators, Lamps, Fluorescents, Switches, Thermostats, etc.
- Will test *all* TV tubes for open filaments, inter-element shorts, burned out tubes, etc.
- Measures A.C. and D.C. Voltages, A.C. and D.C. Current, Resistances, Leakage, etc.
- Will measure current consumption *while the appliance under test is in operation.*
- Incorporates a sensitive direct-reading resistance range which will measure all resistances commonly used in electrical appliances, motors, etc.
- Leakage detecting circuit will indicate continuity from zero ohms to 5 megohms (5,000,000 ohms).

As an Automotive Tester the Model 70 will test:

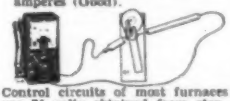
• Both 6 Volt and 12 Volt Storage Batteries • Generators • Starters • Distributors • Ignition Coils • Regulators • Relays • Circuit Breakers • Cigarette Lighters • Stop Lights • Condensers • Directional Signal Systems • All Lamps and Bulbs • Fuses • Heating Systems • Horns • Also will locate poor grounds, breaks in wiring, poor connections, etc.

IT'S SO EASY!!

With tester's cord in outlet, current consumption of appliance is read direct on meter when line cord is connected to receptacle on panel. This typical iron takes 7 amperes (Good).

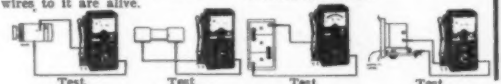


Small electric fan motor indicates 50 ohms (normal resistance).



Control circuits of most furnaces use 24 volts obtained from step-down transformer. Here's how to check room thermostat to see if wires to it are alive.

Manual supplied with Model 70 shows meter needle should move to right when test leads are connected to pins 3 and 4 of this 6AU6 tube. Procedure for testing all tubes used in TV are detailed in manual.



Test Generators — Test Auto Fuses — Test Storage Batteries — Test Circuit Breakers

INCLUDED FREE!!

This 64-page book—practically a condensed course in electricity. Learn by doing.

Just read the following *partial* list of contents:

• What is electricity? • Simplified version of Ohms Law • What is wattage? • Simplified wattage charts • How to measure voltage, current, resistance and leakage • How to test all electrical appliances and motors using a simplified trouble-shooting technique.

• How to test all TV tubes; also simple procedure for determining which specific tube (or tubes) is causing the trouble.

• How to trace trouble in the electrical circuits and parts in automobiles and trucks.

Model 70 comes complete with above book and test leads. Only . . . **15.85**

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You don't pay for the Model 70 until AFTER you have examined it in the privacy of your home! Model 70 is

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Try it for 10 days before you buy. If completely satisfied then send $3.85 and pay balance at rate of $4.00 per month for 3 months—No Interest or Finance Charges Added! If not completely satisfied, return to us, no explanation necessary.

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TYPE XB—Ball bearing model. Best for belt drives. **$12.95**

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BORDEN'S PRODUCTS FOR THE HOME HANDYMAN

Answers To Questions

[*Continued from page* 94]

area are both humdingers. You might have trouble finding Spednic, however. The Maine map shows this wonderful lake as being part of East Grand Lake. You'll find the fishing, the camps and the food excellent. I like June better than July. The prices? Why not write for rates?

● *I hear and read a lot about a thing called magnum. What is it, anyhow?*

Charles Cotton
Denver, Colo.

To many indoor sports, magnum means champagne. That's what they call those oversized bottles the internal bubble baths come in. To outdoor sports, however, magnum means one hell of a souped-up charge in shell or cartridge, giving more velocity and range. In either case, you're going to get a kick like a mule hit you.

● *I have been using a foreign-made spinning line, six-pound test, for several years and find it most unsatisfactory. It snarls, knots, stretches, frays and breaks every time I go fishing. I fish for bass and wall-eyes in the TVA lakes. Is there really a good spinning line or must I go back to bait casting?*

Joe Kowaleski
Louisville, Ky.

There are several excellent spinning lines. A new one just put on the market looks most promising—Stren by Du Pont. It has the least stretch and most strength per diameter of all monofilaments, Du Pont says.

● *My expensive rifle is getting rusty in spite of all I do to prevent it. The receiver is especially bad. Any suggestions?*

Paul Gorman
Salt Lake City, Utah

Clean your rifle as soon as you come in from a hunt or shoot. Don't wait till after dinner or the next morning. A gun allowed to stand neglected after use can break out in a stubborn rash of rust in a few hours, especially if it has rained or snowed. Wipe dry and clean with an oily rag. Be sure to get off all acids from your hands. If this doesn't correct your difficulty, try cleaning and waxing after each hunt. Waxing is work but it does the job.

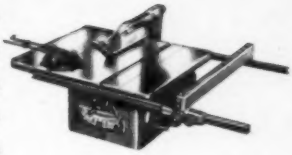
● *While hunting strange country last year with a good compass and a topographical map, we got as lost as robins in a blizzard—all because we had no way of knowing how far*

[*Continued on page* 170]

10" Band Saw

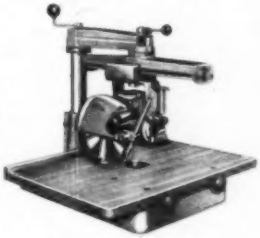
DELTA SHOP

Saw, Jointer, Drill Press, Sander



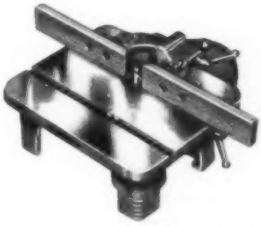
9" Tilting Arbor Circular Saw

Deluxe 4" Jointer



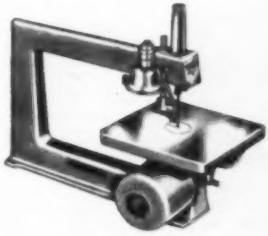
"Super 900" Radial Saw

14/11 Lathe



Heavy Duty Shaper

11" Drill Press



16" Scroll Saw

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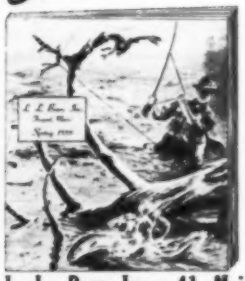

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Answers To Questions

[*Continued from page 168*]

we had walked by noon. You've had years of experience in big, wild country. How do you know how far you walk so you can locate yourself on a map?

Harold Crouch
San Francisco, Calif.

Get a pedometer. It registers each step mechanically. Adjust it to the number of inches in your average stride. To find this, measure off 100 yards in the country you plan to hunt. Count the number of steps it takes you to cover this distance. Divide this number into 3,600—the number of inches in 100 yards. This gives you the number of inches in your average stride for that country. Set your pedometer accordingly and you'll have an accurate way of judging the distance you walk.

● *A pal and I are planning to buy a trailer boat for fishing in the Atlantic Ocean. We'll have to put in through the breakers and will fish out of sight of land. What is the safest and easiest boat to launch through the surf—a lifeboat skiff or a double-ended dory?*

Bill Brinkman
Boston, Mass.

I'll vote for the double-ended dory—with two stout pairs of oars as well as a motor. This boat is as old and safe as organized commercial fishing and keeps afloat in the wildest seas the old Atlantic can throw at you—if you know how to man one. Best size for you is 16-ft. overall, 12-ft. bottom and 54-inch beam. The double-ended dory's advantages over the lifeboat type are many. For one, it rises and falls with the breakers but misses their tremendous battering force. It is very difficult to capsize. Dory fishing is becoming more and more common from Long Island to Cape Cod.

● *In your article, Get Your Share Of Trout (MI May '57) you say that trout hear well. According to my information they don't hear but are limited to the perception of disturbances in water. What say?*

John Smyrl
Pacific Grove, Calif.

I have seen trout trained to come to the surface of a pool for food at the ringing of a small bell. And I know a man who calls his goldfish to the brink of his pool to be fed. Fish, I'm told, hear quite well through the nervous system and lateral line that serves as their ears.

● *On the recommendation of a friend, I just*

purchased an eight-ft., stiff-action dry-fly rod, equipped with a three and three-eighths-inch reel and H E H line. But I can't cast a fly with it. What's wrong?

Al Goldberg
Baltimore, Md.

Just about everything. First of all, no one could cast a fly with it for any distance or with any accuracy as it is now balanced. Your line is far too light for the rod. You'll need at least a G B F or H C H line. But why a stiff-action fly rod for Eastern fishing? I'd suggest a medium-action rod with the action built right down into the handle for all trout fishing east of the Rockies, unless you plan to limit yourself to fishing in a stiff wind.

● *My ten-horse outboard motor dropped into 20 feet of water. After several hours of grappling I raised it, drained it and wiped it off. It turns over freely and I want to use it. But my friends say I'd better have it overhauled first. Is this necessary or a waste of time and money?*

Max Homer
Milwaukee, Wis.

Your friends are right. To start it now would be asking for very expensive trouble. Sand and grit have most likely worked in to where they could chew up a lot of damage in no time if you started the motor. Why not chain your motor to your boat after this?

Goodbye now—and keep the letters coming. •

Auto Racing Facts

[*Continued from page* 84]

contributions which auto racing has made to the public welfare, and specifically to the technical improvement of passenger cars, I must retort that the esteemed Senator just doesn't know what he's talking about. For only somebody who doesn't know would dare make the claim that automotive competition hasn't helped build better and safer automobiles. It has done much more than that—it has even helped us win wars in which our national existence was at stake.

Airplanes, PT boats and Jeeps played a big part in helping us win World War II. The Senator may not know that the centrifugal superchargers, inter-coolers and high-octane fuel that powered our combat planes and PT boats were all first tried out and used in competitive racing on the Indianapolis Speedway. Every time an American torpedo boat sank a Jap de-

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stroyer, or one of our fighter planes downed a Zero, they owed a debt to race car builder Harry Miller, who developed the all-important superchargers which were the very backbone of these great weapons. Even though some aircraft companies have now slightly re-designed the supercharger for commercial use, it is basically the same device that was tested on the Indianapolis track in the hard crucible of racing.

The Jeep's four-wheel drive was first used on a Miller race car at Indianapolis. This same drive was employed on the combat vehicles and supply trucks that made possible General Patton's lightning stabs against the Germans. High-compression engines were a race track development, as were light metal pistons, pressure cooling, advanced carburetion and modern lubricants—all engineering developments which helped us enormously to win the war against the Axis and, incidentally, to hold down our own combat casualties.

The inter-coolers used on the 2,000-hp Pratt & Whitney engines which powered our famous P-47 planes—and also used on the PT boats' Packard engines—were developed by Augie Duesenberg and first tested by him on a racing car. Racing's contribution to American victories in warfare has been truly enormous, even though the general public may not be aware of it. But what has it done to improve the breed of passenger cars, to make them better and safer? Here again the record is a dazzling one.

Many people know that the now universally-required rear-view mirror is a gadget that was first used on a race car at Indianapolis. But all too few people are aware that 90 per cent of the advanced parts on passenger (as well as military) vehicles were first developed on the racing circuits. And even fewer know that the top-flight improvements in modern transportation did not come from the white-coat-and-slide-rule boys in the factory engineering departments. On the contrary, they were the products of the barnyard dreams of men who got their start in racing—not the least of whom were Henry Ford I and Eddie Rickenbacker, an ex-race driver who gave the world the first hydraulic brakes. Fuels, suspension, shock absorbers, spark plugs, fuel pumps, disc and all other type brakes now in use are products of the race track.

Senator Neuberger challenges as "ridiculous" the claim that racing is "essential to the technical development of various advances in car construction" and denies that it is necessary to run racing cars at high speeds to test equipment for general use in passenger cars. As just one example among many, I would like to point out to the Senator that modern tires, the safest ever built, are a direct development of racing.

During the 1950 Darlington stock car race, where the winning car averaged less than 80 mph, there were 511 tire blowouts! Seven years later, in the 1957 race, there wasn't a single blowout, although the average speeds were higher and the distance was still 500 miles. This dramatic improvement in tire safety was literally forced on the manufacturers: they couldn't afford to let their products look so bad before so many people crowding the grandstands at race tracks throughout the country.

And that brings me to another point made by the Senator which cannot go unchallenged. He regards as a "bright spot" in the picture the 1957 decision of the Automobile Manufacturers Association (which includes all American carmakers) to cease participation in racing. I am glad the Senator can see the brightness of this decision. I didn't see it then and I certainly don't now. I regard it as a very dark and dangerous decision indeed. And I will tell you why.

In my job as a professional car-tester I probably drive more cars of more different makes each year than the average person will drive in a lifetime. I know that the first essential of safe driving is a safe automobile. And I know from personal, professional experience that during the less-than-three years when American manufacturers participated in racing, their cars showed greater advancement—from the standpoint of safety—than they had in the preceding 20 years. Like the tire-builders, the car manufacturers just couldn't stand the adverse opinions formed by thousands of race track spectators when, right out there in plain view, well-known stock automobiles snapped wheels or spindles, lost their brakes completely, cracked frames or rolled over on the slightest of turns. They didn't like prospective customers to see their doors fly open at the mildest impact, spewing the race drivers out on the track.

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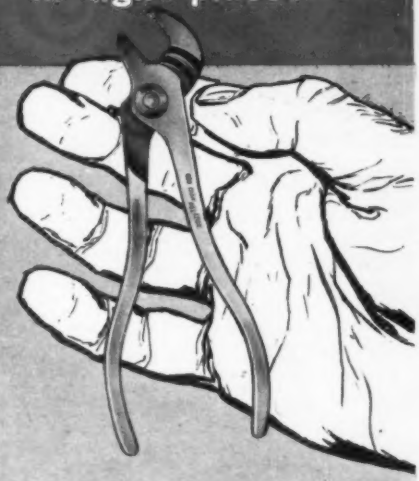

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So what did they do? They built cars with stronger wheels, tougher spindles, better brakes, more rugged frames, improved door locks. Racing brought these improvements in safety—nothing else.

The best way I can prove this to you, Senator, is to point out that in 1959—only two model years after the manufacturers dropped out of racing—two of the Big Three have slipped back and are once more building cars with poorer roadability, mushy suspension and less-safe steering characteristics. And you call this a "bright spot?" If the factories knew they were going to race these '59 cars in view of thousands of spectators, they wouldn't have dared build some of them the way they have.

Senator Neuberger made one interesting point when he asked why, if high speed is important to test cars, it cannot be done by running each car alone on the track instead of racing 20 or 30 of them simultaneously before big crowds of spectators? When I threw this question at Mauri Rose, three-time winner at Indianapolis and now an engineer for Chevrolet, he answered:

"Tom, that wouldn't prove a thing. It's a cinch to go out on a track alone, find the groove and stay in it. When there are 20 or 30 other cars out there, you've got to have a car that's not only maneuverable but also has the very best suspension and brakes, because the groove you want will usually be blocked by some other car. Any old clunker could look good racing against a clock. It takes a well-engineered automobile to be able to weave in and out and still keep its feet—just like passenger cars have to do every Sunday on the turnpike."

Racing is a sport and a very popular one. More Americans watched automobile races in 1957 and 1958 than saw organized baseball games in either year. But it is more than just a sport. It is the finest, most exacting test of good engineering and craftsmanship—and the most devastating unveiler of poor engineering and craftsmanship—that is available to all of us who buy and drive automobiles. In the past, auto racing has forced the manufacturers to build stronger, safer cars. Outlaw racing, Senator? Don't try. For the evils you attribute to it are far outweighed by the substantial and tangible benefits it has given to all the American people, whether they are aware of them or not. •

The Red Fleet

[*Continued from page* 73]

underwater behemoths sport the Red Star, a fleet eight or nine times the size of the Nazi submarine armada at the outbreak of World War II.

Meanwhile, Russian shipyards are known to be capable of turning out as many as 100 new long-range subs each year. Our *entire* active submarine force is just a bit above that figure.

The spurt in surface fighting ships is also causing deep concern in Allied naval circles. Russia has been launching record numbers of sturdily armed and fast destroyers and cruisers as well as mine-laying craft and "fishing" trawlers which keep close tabs on our naval maneuvers and our shorelines—just as the Japanese Navy did in the years preceding World War II.

But there was something puzzling in all this.

Why, our intelligence officers asked, were the Reds pouring huge amounts of critically short steel, electronics and skilled manpower into a fleet that was essentially of World War II design? Why weren't they switching their attention to the nuclear-powered, missile-launching navies of the future?

As if to answer these questions, Russian shipyards last year suddenly became strangely quiet. Few new fighting ships took shape. Submarine output ground to a virtual halt.

Why? By now bits and pieces of information have lead to this informed analysis: The Russians are turning their attention to radically new types of craft—posing an even greater challenge to our defense forces.

It's more than a guess that the Communists will soon announce construction of mammoth "underwater sputniks"—nuclear-powered submarines which can travel for months without refueling—carrying 1,500-mile missiles with an H-bomb punch.

Meanwhile, they've been perfecting a German plan to permit any of their fleet of existing submarines to fire long-range

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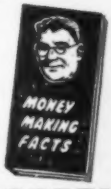

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ballistic missiles—something this nation hopes to be able to accomplish with its complex Polaris system within the next few years.

The Nazi-Russian system is an ingenious short-cut. Missiles and a special launching canister are towed behind submarines in water-tight containers. When the subs are within range of their targets the rocket to be fired is placed, by remote control, in the launching device. A predetermined amount of water fills the canister, which then turns up into firing position. At a signal from the submarine the rocket is thrown clear with a blast of compressed air, its own engine and instruments carrying it to the target.

The Reds are also believed to be converting their newest surface ships to mobile missile launching platforms. And here, too, they may be ahead of the game.

Our experts say there is real reason to fear that the Russians have been able to develop a simple, powerful fleet missile. While no details are available, it is believed that the weapon could be used for long-range attacks against ships or cities, for destroying enemy submarines or for defense against air attack. Our researchers—hoping eventually to replace our complex family of single purpose rockets—haven't yet been able to match this.

With such a seaborne arsenal, the Reds could wreck unimaginable destruction in a surprise attack. Even if Soviet ship or sub-launched missiles were only capable of a 550-mile range, their first nuclear blow might well destroy 43 of our nation's 50 largest cities, 85 per cent of American industry. At the same time, other Red Navy missile units could go after the retaliatory power of the Strategic Air Command, striking many of its bases from predetermined offshore hiding places.

Meanwhile, the global Soviet fleet could well have the size and power to defend the Russian coastline against attack and to sever Allied sea lanes—thereby isolating U. S. and Allied forces in Europe and Asia,

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where they would be clay pigeons for the Red Army and Air Force.

Each day now, Russian Navy leaders grow more bold in their thinking. They warn of "quite different, more modern weapons." They boast of Soviet Warships having "the greatest firing power in the world." They hint at, but keep secret, Red Navy progress in atomic power, long-range rockets, nuclear weapons.

Their 800,000 men and nearly 3,000 ships, their sudden rise as a naval power are already causing restless nights in the capitals of the free world. What will happen tomorrow when our own aging fleet is surpassed by modern Soviet naval might?

Our own navy has the will and the skill to make sure that that day never comes. But the premiums on that kind of insurance come high. It means more men, more money, more missiles, more ships, more planes. Will the price be paid in dollars today—or in lives tomorrow? •

The Studebaker Lark

[*Continued from page* 89]

already stowed away in its tight little trunk. Now, I'm as enthusiastic as the next guy but sometimes a little harder to convince. Through a very close wire to the factory I was given the con man's word that the new V8 Lark could knock off 0-60 mph in 8.5 seconds. From another source, also close to the company, I heard 6.5 seconds flat! When I heard 8.5 my ears pointed up like a wolf's in a big-timber yodeling contest. If the car was light enough, 8.5 was very definitely in the realm of possibility, providing the V8 twirler had a hot cam and big breathing lungs. However, like the elder statesman in Casey's Saloon, I was reserving my decision until I could get the Lark V8 into actual combat. When figures such as "six flat" reached me, I suspected outright collusion or an extremely optimistic imagination.

The first thing I discovered about both these cars, while making my initial runs during off-hours on a well-known turnpike, was that the speedometers at 60 mph were further off than our first moon shot. "Sixty mph" on one meant a true 50 mph and "60 mph" on the other was a true 51 mph! These are the biggest speedometer errors I've found in the past ten years.

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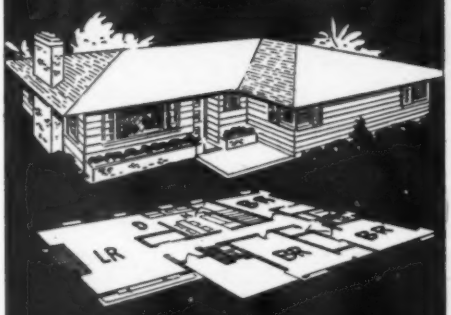

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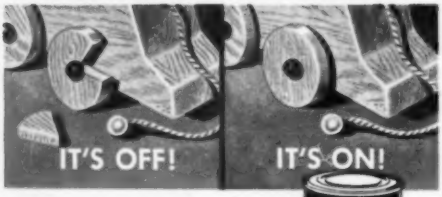

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The V8 I was testing had a single two-barrel carburetor and a single exhaust. For an extra 45 bucks a high-performance kit is available which includes a four-barrel carburetor and dual exhausts. Though such a car wasn't available for my test, a little recalculation of that 0-60 mph in 12.5 seconds was definitely in order. Out of our files came dozens of former tests made on other cars where duals and four-barrel carburetors were offered over single two-barrel jobs as extra optional stuff. In most cases the improvement in acceleration ranged from one full second to a second and a half. Assuming the same would hold true for the new V8 Lark with the high-performance kit, and giving it the full 1.5-second advantage, the 0-60 mph time would be reduced to 11 seconds flat and the 0-50 mph time to 8.4, as 9.9 seconds is what the test V8 Lark took to get to an *honest* 50.

As you can understand, this is all conjecture. But with the power pack (if it did lop off a second and a half) and without correcting the speedometer reading (which is 10 mph slow on the V8), average Joe Blow could conceivably claim a run of 8.5 seconds for an indicated 0-60 mph. It would be inaccurate but that's what it would read. Perhaps this is the basis for all the rumors I heard. Anyway, that's my explanation. On top of all this, if you tossed in a stick shift, a sharp boxboy might lop off another half-second. So . . . if you trusted the speedometer (which we never do) you might very easily get some indicated 0-60 readings that would prove downright sensational.

Now, before anyone gets the impression that I'm running down the V8 Lark's performance, let me quickly state I think it's really great—but I had to run down the rumors to find the truth. Zero to 60 in 12.5 seconds with an automatic transmission, two-barrel carburetor and single exhaust is pretty great stuff these days, considering the depletion of performance in some camps. It means the test V8 Lark is faster at 0-60 than the Chevrolet Impala with its big 348-cubic-inch engine and similar transmission. The Lark is also faster at 0-60 mph than the big Fairlane 500 Ford with Cruiseomatic, which took 12.7 seconds. But before you make your hotel reservations at Daytona, bear in mind that the Plymouth Sports Fury and the big Pontiac both grind up to 60 mph with automatic

transmission in an honest 8.2 seconds. However, the Lark performance is great for a small car with a reasonable price tag.

It's bound to give you better than 20 mpg (unless you drive like an idiot) and you can get this performance out of regular gasoline which means a savings of three to five cents a gallon.

As stated earlier, the V8 hardtop not only handled better around corners but also felt better at high speeds on a straight stretch. Unfortunately, one of my front wheels was very badly out of balance and the ride became rather unhappy even on the turnpike surface when I pushed it to better than 90 mph. The V8 job will do better than 100, I'm sure, but I'm not the guy to tell you how much more until I get one that's balanced out right. The two-door hardtop rig is more expensive than the four-door and, by the same token, the four-door is more expensive than the two-door sedan, the cheapest in the line. The body has loads of free-board. The head-room inside is surprising in this day of the toadstool set. Even Bill France, who is 6'6", could drive a Lark with a silk hat on and it wouldn't be jammed down over his ears. This is a car for a tall man to sit in—a claim very few car manufacturers can make these days for their products.

In summing up, I was quite impressed with the V8 but, then, the price was quite a bit more than for the economy Six with stick shift. An automatic transmission ups the price by almost $200, the V8 engine another $100 and the hardtop body still more. The small Six four-door sedan sells in the Philadelphia Zone (delivered) for $2,-238.00. The hardtop with V8 engine and automatic stuff delivers for $2,866, or roughly $600 more. This puts it right in some hot competition because you can buy Plymouths, Chevys and Fords for this kind of dough. However, the size of the package and the economy of operation could easily be the deciding factor for many shoppers.

To boil it all down, these Larks are interesting cars but I'm sorry to say not too exciting when all things are considered such as price, performance and even economy of operation. To put it another way, I'm sincerely sorry I can't report that these new cars are the greatest buy in the country today, because the country needs good new models and the name "Studebaker" has always been one of the finest in the industry. As this goes to press, I've had re-

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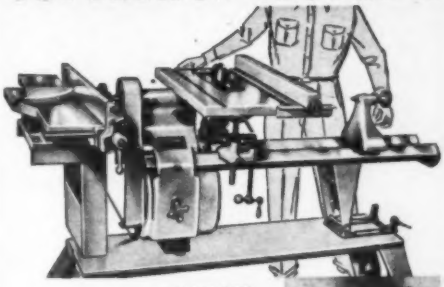

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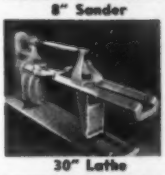

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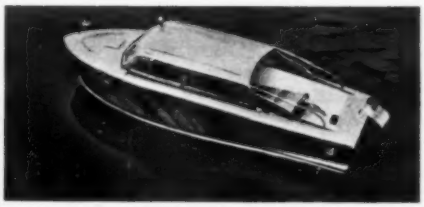
ports that the Studebaker dealers are swamped with orders. This is very heartening to me, for I truly hope they have a banner year. Both Larks I tested offered good, honest transportation. I've driven better but I've driven a lot worse. If you buy one because it fits your needs, the chances are that both you and Studebaker will be very happy about the whole thing. •

DOUBLE WHAMMY



Sleek and fast, this electric-powered model of a twin-engined cabin cruiser is easy to assemble and performs well. All hull surfaces can be developed into a single plane, enabling each side to be covered with one flat sheet of mahogany to save building time. For your copy of large-scale plans for this model, send 50 cents to MECHANIX ILLUSTRATED Plans Service, Fawcett Bldg., Greenwich, Conn. Please specify Plan No. 439.

Run Car On Cooking Gas

[*Continued from page* 103]

cost $22 for his '56 Chevy but price usually varies with size, make and model of car.

You install another solenoid on the gasoline line itself to make it possible to drive on either LP gas or gasoline, automatically shutting off the flow of regular gas whenever the LP gas is in use. This switch costs about $16.

Finally, a three-way toggle switch is screwed onto the dashboard at a cost of about $5 for wiring and switch.

"It takes me about 2½ hours for the complete installation," says Dave, "but the longest it should take even the unhandiest guy with ordinary hand tools, is about 3½ to 4 hours."

Now we're ready to take our test ride. Dave throws his switch over to LP gas, turns the ignition key and steps on the gas pedal. The motor starts quickly and smoothly. Dave lets it idle to show how quietly the engine runs. He drives several blocks to a traffic light, stops and flips the switch. Now we're riding on gasoline. This time, however, there is a noticeable difference—idling is rougher and noisier.

Dave flips the switch back to LP gas

and we drive over to the New York State Thruway, alternating between gasoline and LP gas. LP performance appears smoother.

While the car is moving you can switch anytime from LP gas to regular gasoline. When switching you have to throw the switch into its neutral position for a few seconds to allow the gasoline in the carburetor to get used up. When this happens the car makes a slight lurch.

Dave, who keeps accurate records, says that he makes about 19 miles per gallon on LP gas, about the same mileage he can get on conventional gasoline. In city traffic, however, he gets 14 mpg on LP gas but only 12 mpg on gasoline. (Actually, in a nation-wide average, LP gas users get about ten per cent *less* mpg than users of regular gas.) Dave averages savings of 13 per cent on fuel; 66 per cent on oil changes, and 66 per cent on maintenance and engine overhaul.

Where do you buy LP gas? This is perhaps the number-one drawback. Most converted passenger cars have the dual-fuel type carburetor adapter that is in Reber's car. When they can't get LP gas they ride on conventional gasoline. But in certain sections of the country LP gas stations are few and far between. The Liquefied Petroleum Gas Association, 11 South LaSalle St., Chicago, Ill., will send you a booklet for $1 which lists every known LP gas station in the country.

LP gas costs about six to 12 cents less per gallon than regular gasoline—price ranges from 11 cents for a gallon in the southwest to 28 cents in the northeast. The typical LP gas car owner saves from one-half to three-fourths of a cent per mile over gasoline. Since the average motorist puts in about 10,000 miles a year, converting to LP gas means a saving on fuel of only $50 to $75 per year.

Then there is the cost of conversion which varies according to the make of car, the size of the LP gas tank you install and whether you do the conversion job yourself. In most cases the cost of conversion runs from $250 to $300, including $30 to $50 for the services of a mechanic.

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Tests show that burning LP gas in a motor vehicle eliminates practically all exhaust fumes and noxious gases.

Where do you begin if you decide you'd like to convert your car?

Dave Reber obtained his parts from the Beam Products Mfg. Co. of Los Angeles, one of about a dozen leading producers of LP gas carburetion equipment. Almost any LP gas dealer in your town, however, can direct you to the nearest parts distributor and most LP gas equipment manufacturers are now selling complete conversion kits.

MI Editors will be happy to forward to you a list of manufacturers of LP gas equipment upon receipt of a stamped, self-addressed envelope. Write to Information Dept., MECHANIX ILLUSTRATED, 67 West 44th Street, New York 36, N. Y.

That's the LP gas story. Will it be worthwhile to convert your car? The decision is up to you. •

Meet Rube Goldberg

[*Continued from page* 81]

type of Rube Goldberg is a device that performs, at great expense of anthropoid ingenuity, a perfectly idiotic function such as dusting light bulbs. A classic of this type is a portable photo developing and printing kit that finally burns up the finished product, the ashes falling into a handy river. "To save your friends the agony of looking at your pictures when you get home," explains Rube.

It doesn't take a professor to see that Rube's imbecile inventions all point to some larger imbecility—such as eating too much, serving buffet suppers or boring people with your family snapshots.

How did Rube get started on this strange career? Years ago he was a sports

cartoonist on the San Francisco Examiner. Scratching around for a cartoon idea one day, he happened to recall a machine a teacher of analytical mechanics had rigged up back in college. It filled a 20x20 room with instruments, gauges and scales. Its job was to calculate the weight of the earth. "If he could go to all that trouble to get a ridiculous result, so can I," thought Rube. And he sat down and knocked out the original Rube Goldberg.

Rube's name is to be found again and again in the Congressional Record; it has become a club for legislators to batter each other's pet projects with. Naturally, this kind of fame pleases him. But the recognition he enjoys most is in the form of strange machines contrived in his honor. When he visited the currency printing plant in Washington, officials led him proudly to a wildly renovated machine that printed outlandish money, which was solemnly presented to him as a souvenir.

You'd hardly think that a man who had made a fortune on wacky inventions would ever take to the flinty road of real gadgeteering. But he once put a lot of effort into a sheet music turner for pianists, and he has tinkered with a dishwasher of his own design. Neither worked. The biggest goof in his real inventing career was a garterless stay-up sock that *did* work. Rube let a partner talk him out of the venture. Later someone else made a pile on the item. "After that I went back to my own kind of inventing," says Rube.

There are still some inventions Rube would like to see, for real. For instance, he'd like helium balloons in restaurants, to do away with hat-checking and the crushing of hats on coat trees. You put your hat on a balloon, let it go up to the ceiling; when you're ready to leave you haul it down.

One invention he's very serious about: something to light up roads at night—really light them up like daylight. He's convinced it would cut the accident rate.

Rube turned to political cartooning some years ago, won a Pulitzer Prize in 1947 for his cartoon of an American family sitting unconcernedly on a plunging atom bomb shaped like the world. He does his political cartoons for King Features Syndicate and the Hearst papers.

Rube lives in a comfortable Manhattan apartment house not far from his 57th

[*Continued on page* 185]

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Meet Rube Goldberg

[*Continued from page* 183]

Street studio. On his studio walls are mementos of over half a century of being a famous cartoonist. There's a painting by James Montgomery Flagg, inscribed to Rube, and a poem called Old Rube by his friend, the late Grantland Rice. In a corner hangs a large piece of drawing board covered with hundreds of signatures. Once Rube threw a big New Year's Eve party and hung up this board topped with the inscription, "I'd like to know what sort of bums I'm entertaining, so, damn you, sign here." Fading signatures show that the "bums" included violinist Jascha Heifetz, novelist Edna Ferber, composer George Gershwin, comedienne Fanny Brice, playwright Marc Connelly, producer John Golden, actor Louis Calhern.

Rube's been married 41 years and has two sons and four grandchildren. One son, Thomas George, is a well-known painter. The other, George George, is a Hollywood producer and writer. Like George M. Cohan, Rube was born on the Fourth of July. He has bright, inquiring eyes and the springy step of a young man. He's at his drawing board before nine every morning and is still planning new books and other cartooning ventures.

For 20 years Rube drew the popular Boob McNutt cartoon strip. Boob was an endearing goof-up, always in trouble. Unintentionally, Boob put an end, some years ago, to the White House hopes of a political leader named Paul V. McNutt. Paul V. conceded that folks just wouldn't vote for any McNutt "for fear he'd turn out to be a Boob."

Boob has vanished from the funny papers but his creator is still tapping one of the world's most shrewdly zany imaginations, still amusing new generations. And still inventing. Wait till you see the next 2,000 Rube Goldbergs! •

FUTURA

Scaled after the famous Lincoln Futura, this model has an electric motor, lights, indicator and plastic canopy. For full-scale plans send 50 cents to MECHANIX ILLUSTRATED, Fawcett Bldg., Greenwich, Conn. Specify Plan M-237, Futura.

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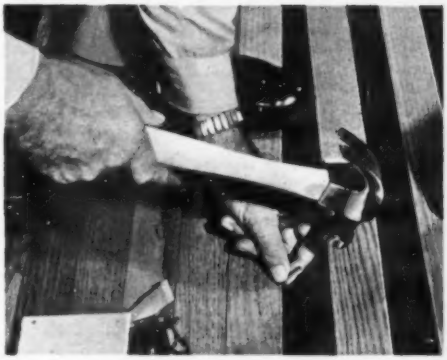

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What Is Your Atomic IQ?

[*Continued from page* 100]

1. True. The first steamship to cross the Atlantic was the *S.S. Savannah* in 1819. The first atomic-powered merchant ship will be named after it and called the *N.S.* (Nuclear Ship) *Savannah*.
2. False. German scientists discovered modern atomic energy in 1938.
3. False. Atomic fission, the splitting of heavy nuclei such as uranium, releases the energy that explodes the atomic bomb.
4. True. An atomic furnace is called a reactor and is designed to withstand the tremendous amount of energy produced by the splitting of atoms.
5. False.
6. True.
7. True.
8. True. Recently the AEC set off an atomic explosion deep in a Nevada mesa. The AEC believes that this new method will lead to obtaining minerals and oil from the ground much more easily and cheaply than is now possible.
9. True.
10. False. Research in this field has been going on for quite some time and the armed forces plan to test irradiated foods in the near future.
11. *Nautilus*.
12. Mechanical hands used to handle radioactive materials.
13. Shippingport, Pa.
14. A device used to detect the presence of radioactivity.
15. The inner core of the atom consists of neutrons and protons locked together.
16. The amount of nuclear fuel necessary to sustain a chain reaction.
17. Hot means highly radioactive.
18. Lead.
19. A roentgen is a unit of radioactive dose, or exposure.
20. John A. McCone.
21. U-235. Scientists have discovered that U-235, a rare isotope of uranium, is the atom that is most easily split.
22. John Dalton, a Quaker school teacher who lived in the 18th Century.

Give yourself five points for each correct answer. Here's how to interpret your score: Zero to 30—you're an atomic dud; 35 to 55—you can distinguish uranium ore from a hunk of coal; 60 to 80—you're on your way to atomic science degree; 85 to 110—you're cooking with atoms! •

Talk About Telephones

[*Continued from page* 104]

little about. Who would have thought that Alaska was the telephoningest place in the world—630 phone conversations per person per annum? And the next talkingest is Hawaii. Next is Canada, then Sweden, then the U. S.

New York has more telephones than any other city—and only four *countries* have more phones than New York's 4,077,000. They are the U. S. (naturally), the United Kingdom, Canada and West Germany. The U. S. has 35.45 phones for every 100 persons; next is Sweden with 31.50.

The countries with over 1,000,000 phones are the U. S. (60,190,377), the United Kingdom (7,218,791), Canada (4,502,326), West Germany (4,323,225), Japan (3,486,821), Sweden (3,312,223), France (3,313,426), Italy (2,609,127), Australia (1,762,173), Switzerland (1,293,-743), Netherlands (1,229,174), Spain (1,199,078), Argentina (1,155,198) and East Germany (1,066,582).

The lineup of countries and areas with over 15 phones per 100 population is a little different: U. S. (35.45 phones per 100), Sweden (31.50), Hawaii (30.10), Canada (27.56), New Zealand (25.59), Switzerland (25.50), Channel Islands (24.57), Denmark (20.52), Australia (18.48), Norway (17.75), Alaska (17.52) and Iceland (17.44).

So much for comparative telephony. How about the places that you just don't associate with telephones? Well, Manamah, which is in Bahrain, is a place few people associate with *anything* but it has 1,535 phones. Bathhurst, Gambia, has 358. Addis Ababa has 3,677, Goa has 247, Pago Pago has 331, Papeete has 691.

These figures go back to the beginning of 1957, because while talk is cheap (especially if you have unlimited local calls) it is a difficult and costly matter to collect up-to-date figures on who is doing all the talking. The latest figures on the USSR—861,181 phones and 0.52 phones per 100 population—go back to 1936. If Comrade Khrushchev wants those figures corrected, we're in the book.—*Harvey Gardner*

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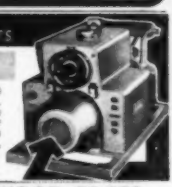

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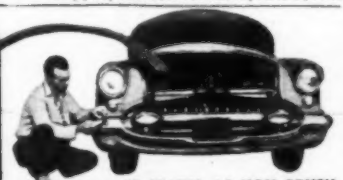

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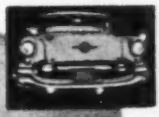

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Buy Small Business

[*Continued from page* 93]

terested, tell him you'll think it over.

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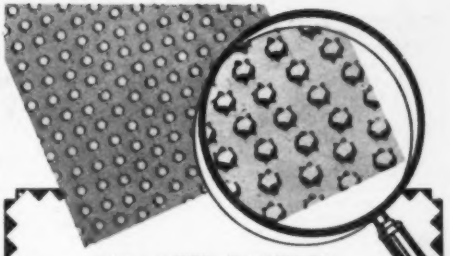
Probably you will shop around a while before buying. When you do decide to plunge, get a lawyer to check the seller's records. (If the seller won't cooperate, it's time for you to drop out of the deal.) Your lawyer finds out the financial standing of the business, how long the lease will run and similar matters, and he works out the terms of the sale with the other man's lawyer.

All this is worth money to you, as your lawyer may find grounds for demanding a lower purchase price. His fee will vary depending on the part of the country and the size of the business, but it will probably be around $125 for the kind of small business we're considering.

If your lawyer doesn't suggest it, here is a type of sale agreement to consider: the one-week trial. You go into the store and run it for a week, with the seller helping you. If you really believe, when you lock up Saturday night, that the guaranteed weekly take they've been talking about is phony, you are still a free man.

But if you're satisfied, you open up Monday on your own. Man, you're a shopkeeper, like Wanamaker and Woolworth! And you did it for very little money—much less than starting a new business would cost. •



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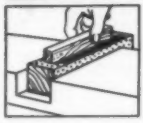

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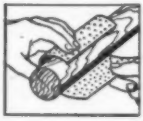

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Telescope Maker's Page

[*Continued from page* 159]

to affect sinners and others of that ilk in church. When designing your mounting, make sure it is heavy, not flimsy. You can see more with a low-powered telescope and a sturdy mount than through a high-powered job and a makeshift stepladder rig for a mounting.—*Robert Brightman*

One-Handle Faucet

[*Continued from page* 161]

iron, adapters can be used in conjunction with a couple of lengths of copper supply pipe.

If your present connections are with bendable copper lavatory supply pipes, replace them with sink tubes of the required length. No matter what your connection problem, your plumbing supply dealer will have an adapter or bushing to solve it.

The faucet assembly is slipped into the basin holes and secured by means of lock nuts and a gasket that seals the connection. This completes the supply and waste pipe connections.

The lever controlling the drain plug fits into an escutcheon that is mounted with a single nut and washer to the basin deck.

When the entire assembly is complete, remove the aerator from the spout, turn on the water and flush the faucet thoroughly to remove chips and pipe scale.

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U-Build-It Grinder

[*Continued from page* 161]

of the bearings have been made. These tests are necessary to detect distortion inside the pipe wall area which grips the bearing. Such distortion can be corrected by scraping down high spots with a hand scraper.

Wrenching the bearings in place. Care must be taken that the ⅛-inch slits in the holding sleeves are sawed out where the seam of the pipe is located. With the slits made, and the pipe threads tapered, a strong lock-grip will hold the bearing when it is wrenched in tight. Since the bearings are retained ⅛ inch inside the coupling face you will have to position them by hand. In the final tightening, rap the bearing into the correct position just a fraction of a turn prior to its final tightness.

To insert the spindle, remove the entire assembly of fittings (on one side of the tee only) by disengaging the hexagonal bushing-reducer fitting from the tee being sure to mark its *tightened* location.

With the bearings assembled and the spindle out, measure the overall distance to the outside of the ball-bearing faces. Subtract from this figure twice the width of one bearing and you will obtain the exact spindle shoulder distance between bearings and can proceed to turn the spindle on the lathe. The bearing diameters are such that they will leave the shaft's arbor shoulders projecting at least ½ inch outside the coupling ends. In turning the spindle do not chuck the shaft as the spindle must revolve as true as possible.

In boring the hole in the 2x4 guard mounting block, drill first through a piece of scrap wood with an expansion bit in order to test its diameter over the coupling. After the blocks are bored the pinch-lock slit is cut from outside the front end of the block to one inch from the rear. The wheel guards are removed by simply relieving the pinch-lock nut and sliding the block off the couplings.

The grit-catching tray is made from one piece of 0.020-inch sheet steel. With a ½-inch bent-up edge it can be used to hold coolant for pouring over cut-off jobs. •

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Here's why we make this offer. About ten years ago, my colleagues and I realized that too many people were missing wonderful careers in art . . . either because they hesitated to think they had talent . . . or because they couldn't get top-notch professional art training without leaving home or giving up their jobs.

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John Whitaker of Memphis was an airline clerk when he began studying with us. Recently, a huge syndicate signed him to do a daily comic strip.

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